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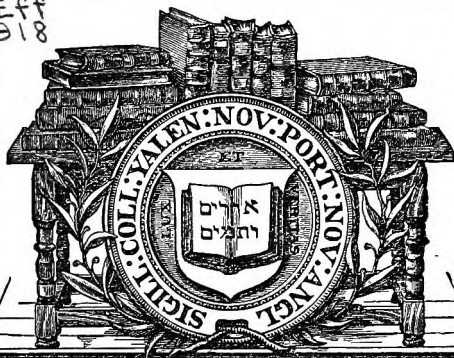


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I. D. 1217

A HANDBOOK OF THE UGANDA PROTECTORATE

*Prepared by the Geographical Section of the Naval
Intelligence Division, Naval Staff, Admiralty*

LONDON:

PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

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NOTE

THE material for this book was collected during the Great War, but owing to the dispersal of the Section a few months after the Armistice, the work of putting the collected information into book form was suspended. Subsequently it was decided to proceed with the book substantially as it stood at the time of the Armistice. It therefore does not profess to be completely up to date.

In the work of compilation the authors received much valuable assistance in the shape of information and suggestions from Government Departments, notably the East Africa Section of the Colonial Office, and from officials and others resident in the Protectorate. They are especially indebted to Mr. H. R. Wallis, C.M.G., late Acting-Governor of the Protectorate, who himself worked on the book. His book, the *Handbook of Uganda*, was of the greatest use.

CONTENTS

CHAP.		PAGE
I.	DESCRIPTIVE GEOGRAPHY	1
	Situation, Area, Name—Boundaries—General Description.	
II.	PHYSICAL GEOGRAPHY	13
	PART I. SOUTHERN REGION. * PART II. NORTHERN REGION.	
	Part I. Lake Victoria—Victoria Nile—Lake Kioga, Lango, and Teso—Mount Elgon and Bukedi—Busoga—Buganda—Ankole—Kigezi—Western Rift Valley—Mfumbiro Mountains—Bufumbiro and Lake Mutanda—Lake Edward—Kazinga Channel and Lake George—Toro—Ruwenzori—Semliki Valley—Lake Albert—Bunyoro.	
	Part II. Bahr el Jebel and West Nile District—Country between Bahr el Jebel and Eastern Rift Valley, Assua River—Gulu, Chua, Lohor, and Karamojo—Eastern Rift Valley and Turkana Country—Lake Rudolf.	
III.	GEOLOGY	92
	General—Distribution of Rocks—Ruwenzori.	
IV.	CLIMATE	102
	General—Climatological Data—Principal Meteorological Stations.	
V.	VEGETATION	150
	General Survey—Steppe—Savannah—Forests—Alpine Vegetation.	
VI.	FAUNA	163
	General Survey—Mammals—Birds—Reptiles and Fishes—Insect and other Pests—Appendix: List of Big Game Animals.	
VII.	POPULATION	185
	The Pygmy Group—The Bantu Group—The Hamitic-Bantu Group—The Nilotic Group—The Masai Group—Education.	
VIII.	SANITARY CONDITIONS	218
	Diseases of Europeans—Native Diseases—Snakes, &c.—Hospitals.	
IX.	RESOURCES	224
	Agriculture—Agricultural products—Forest products—Livestock—Animal products—Fisheries—Minerals.	

CHAP.	PAGE
X. TRADE, FINANCE, AND INDUSTRY	261
Imports and Exports—Transit and Re-export Trade—Local Trade—Banking—Industries—Labour.	
XI. UGANDA TOWNSHIPS	274
XII. COMMUNICATIONS	298
External—Railways—Waterways—Roads and Tracks—Posts and Telegraphs—Itineraries.	
XIII. GOVERNMENT AND ADMINISTRATION	325
Central Government—Provincial Government—Administrative Divisions—Justice—Police—Revenue and Expenditure—Currency—Land Tenure—Mining.	
XIV. HISTORY	343
Early History—Religious Wars—Britain and Germany—The I.B.E.A.—Portal's Mission—The Mohammedan Revolt—The Bunyoro War—The Sudanese Mutiny—Johnston's Special Commission—Recent History—Survey of Economic Development.	
APPENDIX I. CLIMATE TABLES.	378
APPENDIX II. POPULATION STATISTICS (1918)	425
INDEX	427

MAP

UGANDA PROTECTORATE

CHAPTER I

DESCRIPTIVE GEOGRAPHY

Situation, Area, Name—Boundaries—General Description.

SITUATION—AREA—NAME

THE Uganda Protectorate is situated in East Central Africa, between lat. 5° N. and lat. 2° S., and long. 29° E. and long. 36° E. Together with British East Africa it is the only portion of the British Empire through which the Equator passes. It contains an area of 109,119 square miles, of which 16,377 square miles, or more than a seventh part of the whole country, are water.

The nearest point to Uganda on the shore of the Indian Ocean is the mouth of the Tana, the chief river of British East Africa, which is distant 490 miles. Entebbe, the official capital of Uganda, on the north-west shore of Lake Victoria, is 800 miles from Mombasa, in British East Africa, by the Uganda Railway and lake steamers.

Uganda was the name given to the country by its first European discoverer, Speke. He derived the name from the Swahili Arabs who were his guides. The correct form of the word is Buganda, and should properly be confined to the native kingdom of Buganda, which now forms the central and most important province of the Protectorate. The people of this kingdom are known collectively as Baganda, the individual as a Muganda, and the language as Luganda. The form Uganda is, however, now established by long usage, and is applied to the whole collection of native kingdoms and districts which together constitute the Uganda Protectorate. The Uganda Railway traverses British East Africa from Mombasa on the Indian Ocean to Kisumu on Lake Victoria, but does not enter Uganda at all.

BOUNDARIES

Uganda is bounded on the west by Belgian Congo, which extends to the Atlantic, on the north by the Sudan, on the north-west, for a few miles only in the waters of Lake Rudolf, by Abyssinia, on the east by British East Africa, and on the south by the Tanganyika Territory, formerly German East Africa, and the new mandatory territories of British and Belgian Ruanda.

The Uganda-Congo Boundary

The boundary line follows roughly the course of the Western Rift valley. Starting from the summit of Mount Sabinio, the extreme south-western point of Uganda, it runs for 11 miles in a northerly direction across a lava plain to the summit of Mount Giskio. Thence it continues along the mountains which here form the eastern wall of the Rift valley. Two miles north of Mount Kirambo it intersects the river Ruchuru at the most northerly point of its elbow-bend from north-west to south-east. Thence it continues to the summit of Mount Nkabwa, a prominent height on the eastern wall of the valley. A short straight line due east carries it to the Muriaga river, which it follows to its confluence with the Ishasha, and thence down the Ishasha on to the floor of the Rift valley to its mouth on the south-eastern shore of Lake Edward. The line runs up the centre of the lake to its most northerly point, the mouth of the Lubilia-Chako river, which it then follows to its source in dense forest on the southern slopes of Ruwenzori. Continuing northwards along the range to the summit of its highest peak, Margherita, the boundary turns north-east to the source of the river Lami. It follows the Lami, first NNW. and then north-east to its confluence with the Semliki, which at this point is flowing ENE. through the Ituri forest. From here to Lake Albert the Semliki is the boundary. The line runs up the centre of Lake Albert north-east to a point midway between the two shores on lat. 2° N., then north as far as lat. $2^{\circ} 7' \text{ N.}$, where it turns north-west and strikes the western shore of the

lake on the south side of Dei Creek, leaving Mahagi in Belgian territory two miles to the south. Here it leaves the Rift valley and runs in a general WNW. direction to the summit of the water-parting between the Nile and Congo river systems, distant about 30 miles from the Bahr el Jebel to the east. Turning north the frontier continues along the summit of the Congo-Nile watershed for about 80 miles to the source of the river Kaia, about lat. $3^{\circ} 30' N$. This is the meeting-place of the frontiers of Uganda, Belgian Congo, and the Sudan.

The Uganda-Sudan Boundary

The boundary line between Uganda and the Sudan runs from the Congo-Nile watershed down the course of the Kaia river for 45 miles in a north-east direction. At the point where the Kaia bends away to the north, the frontier leaves it, and turns ESE. to the source of the small river Nyaura, which it follows to its confluence with the Aiyu river. The frontier line follows the Aiyu for a short distance in a north-east direction, down the gorge by which the river breaks through the western escarpment, to a point about 2 miles from its confluence with the Bahr el Jebel. Turning south-east, it passes across the foothills of the Nyiri mountain, which here forms the western wall of the valley, following a line at a distance of about 2 miles from the river. Opposite Nimule it turns east and crosses the Bahr el Jebel to the mouth of the Umyama river, leaving Nimule in the Sudan. The frontier follows the course of the Umyama, which flows north-west into the Bahr el Jebel, for about 10 miles as far as Mount Ebijo on the right bank. Here it leaves the Umyama, and runs east through open grassy country for 6 miles to the river Assua (Aswa), which it strikes opposite Kadomera, a height on the Amoji hills overlooking the right bank. After following the course of the Assua in a north-westerly direction to a point about 12 miles east of Nimule, it leaves the Assua and strikes north-east to Mount Matoko, passing for about 13 miles through country which is uninhabited on both sides. Thence it traverses a high undulating country, thickly covered with bush and forest, in a direc-

tion a little north of due east, to the Agoro mountains. For 75 miles the frontier line passes through these mountains in an easterly direction, crossing the summits of Mounts Agu, Gule, and Ilala. At the last named it turns north-east to the summit of Mount Langia (10,120 ft.), the loftiest peak of the Agoro Range. Thence, still following the same direction, it passes across the northern end of a long lofty spur, which projects southwards for 20 miles, known as Mount Teretenia. On reaching the river Kos, which flows NNW. from Uganda into the Sudan, the frontier line turns east to Mount Latome (4,000 ft.), running parallel with and less than a mile from lat. 4° N. Immediately to the east of Mount Latome it intersects the large watercourse of the Kideppo, which crosses the frontier in a WNW. direction. From the Kideppo the boundary line runs ENE. to the south of Mount Harogo (4,450 ft.), which it leaves within the Sudan. Thence it strikes in a north-easterly direction, crossing the escarpment of the Eastern Rift valley just north of Mount Zulia, and continuing across the floor of the valley, over an open uninhabited plain, to the north of Mount Mogila. Here it turns due east and runs in a straight line for 110 miles to Lake Rudolf, traversing for the greater part of the way a level bush-covered waterless plain. About halfway between Mount Mogila and Lake Rudolf it passes across the northern slopes of the Kaiserin mountains, and, just before reaching the lake, the northern slopes of Mount Lubur. The frontier strikes the shore of Lake Rudolf at Sanderson's Bay, in the north-west corner of the lake, and runs across the bay to the northern extremity of its southern horn, continuing about 1 mile out into the waters of the lake, where is the meeting-place of the frontiers of Uganda, the Sudan, and Abyssinia.

The Uganda-Abyssinia Boundary

The boundary between Uganda and Abyssinia is only 7 miles long. It is represented by a diagonal line running north-west and south-east in the waters of Lake Rudolf, from the point above mentioned south-east to the point of inter-

section of lat. $4^{\circ} 34' N.$, with long. $36^{\circ} E.$, the meeting-place of the frontiers of Uganda, Abyssinia, and British East Africa.

The Uganda-British East Africa Boundary

The administrative frontier between Uganda and British East Africa starts from the point above mentioned and continues due south down the centre of Lake Rudolf till it strikes the western shore, which here runs north-east and south-west, at the mouth of the Turkwel river. The frontier follows the course of the Turkwel from Lake Rudolf to its source in the crater of Mount Elgon. The general direction is due west for 40 miles, then south-west for 20 miles, then south for 60 miles to the confluence of the Turkwel with the Wei Wei, or Kerut river, which comes in on its right bank in British East Africa. From this point, which is in the southern Turkana country, the direction is south-west to Mount Elgon. The frontier crosses Mount Elgon in a diagonal line from north-east to south-west to the source of the Malaba or Malawa river, which it follows in the same direction as far as the point where it is crossed by the road from Mbale to Busia. Thence it runs SSW. down this road as far as its junction with the road from Mumias in North Kavirondo. Here it strikes the Sango river, which it follows in a southerly direction to its junction with the Sio river, and thence down the Sio to its mouth on the north-east shore of Berkeley Bay, where it reaches Lake Victoria. In the waters of Lake Victoria the frontier runs close to the British East African shore, in a general southerly direction. From the mouth of the Sio river it strikes south-west to the centre of the channel between Sumba Island on the east and the large island of Sigulu on the west, at the entrance of Berkeley Bay; thence SSE. to the west end of Mageta Island; thence southwards to the most westerly of the islets adjacent to Mfwanganu, a large island off the mouth of the Kavirondo Gulf; thence to the most westerly of the islands of Ugingo, about 8 miles WSW. of Karungu on the mainland in British East Africa; and thence

south-east to the point where long. 34° E. intersects with lat. 1° S., a little to the south-west of the rocky peninsula of Mohoru. This is the meeting-place of the frontiers of Uganda, British East Africa, and the Tanganyika Territory (German East Africa).

The Southern Boundary

The old 1914 Uganda-German East Africa frontier is now divided into three parts, the boundaries respectively of the Tanganyika Territory, British Ruanda, and Belgian Ruanda, the limits of the Uganda Protectorate remaining unchanged.

The boundary between Uganda and the Tanganyika Territory follows the line of lat. 1° S. for about 220 miles, of which 150 miles are in the waters of Lake Victoria. Striking the western shore 4 miles south of the mouth of the Kagera, it intersects that river 7 miles inland from the lake. The Kagera here is flowing north-east through a swampy valley, has a breadth of about 100 yards of clear water, and is 18 ft. deep. Passing through a region of dense forest and across the Minziro hills, the frontier line then traverses the open rolling plains of Bukanga, beyond which it enters the mountainous country of southern Ankole. Here, 58 miles from where it crossed the Kagera, the frontier again strikes the river, which at this point is flowing ESE. Four miles downstream are the Miningame Rapids which mark the limit of navigation. The frontier, leaving the line of lat. 1° S., follows the Kagera, the river flowing in a series of falls, with the Ruampara mountains to the north, and the Karagwe mountains to the south. Two miles upstream is the head of the bend, where the Kagera turns from ENE. to ESE., just above which are the Kansori Falls. The frontier, following the course of the river upstream, runs WSW. to the Amrun Falls. A little above them it turns west, still following the Kagera, which is here flowing east, until it reaches the confluence of the Kagera and Kakitumba rivers. This point marks the beginning of a great bend in the course of Kagera, which at Kayonsa, 2 miles upstream, is flowing NNE. The meeting of these rivers also marks the

point where the boundary of the new mandatory territory of British Ruanda now begins. The line, leaving the Kagera, follows the Kakitumba river—first west, and then south to its confluence with the Chinchiza river, and then along the Chinchiza south-west to its source. Thence it strikes almost due south to the point where the Muvumba river, a tributary of the Kakitumba, cuts the old Uganda-German East Africa frontier. Here the boundary with British Ruanda ends, and that with Belgian Ruanda begins. The frontier between these two mandatory territories has not yet been precisely delimited, and if the trace of the proposed railway from Tabora requires it, Mt. Kivise, 3 miles south-west of the point indicated, will mark the beginning of the Uganda-Belgian Ruanda frontier. From Mt. Kivise the line continues in a general south-western direction, through the mountainous Rukiga country, to the source of the Kirurumu river. At this point, which is 7 miles due east of Lake Mwuleru in Belgian Ruanda, the frontier turns north and follows the course of the Kirurumu for 8 miles, when it bends first west, and then north again, through bamboo forest, leaving Mount Mabaremere in Uganda. Curving round to the south it comes within a mile of the northern shore of Lake Mwuleru, and then bends back again north-west for 4 miles, when another curve to the south-west carries it to the summit of Muhavura, the most easterly of the Mfumbiro mountains on the eastern edge of the Rift valley. Thence it strikes due west across the summit of Mgahinga to the summit of Mount Sabinio, the meeting-place of the frontiers of Uganda, Belgian Ruanda, and Belgian Congo.

GENERAL DESCRIPTION

Eastern Africa is furrowed by an enormous fissure or fault in the earth's surface, which runs, with some interruptions, from Rhodesia to the Red Sea, varying in breadth from 20 to 50 miles. The Red Sea itself is a continuation of this Rift valley, repeating as it does on a larger scale the structure of the long narrow lakes of Central Africa. From the Red Sea

the trough runs up the Gulf of Akaba to the deep depression of the Dead Sea and the Jordan valley, finally terminating in the neighbourhood of Antioch.

Not long after its start, to the north of Lake Nyasa, the valley divides. The main branch, continuing northwards through the Tanganyika Territory (German East Africa), forms the Great Rift valley, which passes across British East Africa from south to north, where it is from 2,000 to 3,000 ft. in depth, and bordered on either side by magnificent escarpments. The other branch trends at first north-west, and then sweeps round in a huge semi-circle to the north-east, through Lakes Tanganyika, Kivu, Edward, and Albert, whence it is continued northwards down the valley of the Nile, here known as the Bahr el Jebel. This western branch, which is even more remarkable and spectacular than the Great or Eastern Rift valley, is variously called the Western or Albertine Rift valley, the Central African trough, the Great African Lakes valley, and the Tanganyika-Nile rift.

Between these two gigantic trenches is a plateau, on which, in a vast shallow depression, is the Victoria Nyanza or Lake Victoria, the largest of the African lakes, and the main source of the Nile. Its northern shore corresponds approximately with the Equator. The Protectorate of Uganda is situated on this plateau to the north and west of the Victoria Nyanza, comprising, to the south-east, the northern and north-western portions of the lake. The Eastern Rift valley only comes within the limits of Uganda to the north-east, towards Lake Rudolf, the river Turkwel, which flows on the valley floor, constituting the boundary with British East Africa. To the west, the northern half of the great semi-circle of the Western Rift valley forms an immense natural dyke, separating the plateau of Uganda from the lower-lying Congo region. To the north-west both sides of the valley of the Bahr el Jebel are now within the Protectorate.

Uganda thus occupies, on the one hand, the culminating head of the great African system of lakes and land-waterways, extending northwards from Lakes Nyasa and Tanganyika,

which offers a main route, largely natural, from the mouth of the Zambesi, on the southern Indian Ocean, to Central Africa, and, on the other hand, the area round the head waters of the greatest of African rivers, the Nile, and the beginning of its course of 3,500 miles to the Mediterranean.

Practically the whole of Uganda forms a single drainage area, that of the Nile, the only exception being the streams of the Eastern Rift valley and its western escarpment, in the north-eastern portion of the Protectorate, which belong mainly to the inland system of Lake Rudolf. It is believed, however, that at no very distant period Lake Rudolf sent its waters to the Sobat, and was thus part of the Nile basin, but at present it has no outlet. The watershed between the Congo and the Nile systems is nowhere far from the western frontier, and in the north-west, in the West Nile District, actually constitutes the boundary, but no stream from Uganda enters the Congo. The Victoria Nyanza, as already stated, is the main source of the Nile, which flows out of it to the north, a full-grown river, over the Ripon Falls, and is known, as far as Lake Albert, as the Victoria Nile. Scarcely less important, however, in the formation of this great stream is the contribution of the Western Rift valley, down which, through Lakes Edward and Albert, descend the waters of the great Ruwenzori range. In Lake Albert the two sources of the Nile unite, issuing from the lake as a single stream, the Bahr el Jebel or Mountain river.

The volcanic range of the Mfumbiro mountains, part of which is just within the extreme south-western corner of Uganda, stretches, from east to west, right across the Western Rift valley, completely blocking it. The streams descending the northern slopes of these mountains are the ultimate sources of the Nile in the Rift valley, the waters of the southern slopes belonging to the Congo system.

The main plateau of Uganda has an average elevation of 4,000 ft. above sea-level. The variations in altitude are inconsiderable, and there are no heavy gradients.

A deep irregular central depression crosses the plateau,

connecting Lake Victoria in the south-east with the northern end of Lake Albert in the Western Rift valley. This low-lying tract of country includes the valley of the Victoria Nile and the chain of lakes and swamps, which form the Kioga lake-system, and extend eastward to the foothills of Mount Elgon. Uganda is in this way divided into a northern and southern region, the latter including the depression itself. The southern region, in its turn, is divided into two natural subdivisions, eastern and western, by the Victoria Nile, which flows for the greater part of its course in a northerly direction.

In the northern region the physical features are more uniform than in the southern. Here, in the north, the country consists, for the most part, of open plains, hot and dry, though not unhealthy. The levels rise gradually from west to east, from the low, unhealthy valley of the Bahr el Jebel to the edge of the escarpment of the Eastern Rift valley, where there is an abrupt drop to the arid Turkana country. Hill ranges and isolated heights stand out at intervals from the rolling plains, varying in altitude from 3,000 to 10,000 ft. The slope is more considerable than it is in the southern region, and the streams in the north are clear-flowing and often swift. There is, however, very little permanent water, and, except in the valleys of the Bahr el Jebel and its great tributary the Assua (Aswa), northern Uganda is a dry bare region as compared to the wealth of vegetation in the remaining two-thirds of the Protectorate.

In the southern region the large area in and adjacent to the central depression of the Kioga lake system affords the greatest economic asset of the country, the soil being extraordinarily fertile, and capable of the richest tropical cultivation. In 1916 out of the 92,000 acres under cotton cultivation in Uganda, no less than three-quarters of this total area were in this region. It is, however, extremely unhealthy, and unsuitable for European residence of any long duration.

West of the Victoria Nile, and along the north-western shores of the Victoria Nyanza is the kingdom of Buganda,

the most important part of the Protectorate, and comprising one-sixth of its entire area. It is only less fertile than the country round the central depression, and is covered with a rich red soil. The topography of Buganda consists of an endless succession of low hills and ridges of red clay, alternating, every mile or so, with green swamps. Owing to these hills and the very gradual slope, the streams are sluggish, and choked with papyrus and marsh-vegetation. There is scarcely a river or stream in Buganda with any sensible flow. A great part of Bunyoro to the north-west, and the district of Busoga to the east of the Victoria Nile are very similar in character. South and south-west of Buganda, in Ankole, there are great stretches of open pasture land, and along the southern frontier highlands and mountain ranges. To the west of Buganda is the fine country of Toro, well-watered by clear rushing streams from Ruwenzori.

There are many large areas of dense forests in the southern region, and it is not improbable that, down to a few hundred years ago, the whole of this part of Uganda was little else than an eastern prolongation of the Congo forest.

The great mountains and highlands of Uganda are disposed, for the most part, round the borders, and in many cases are actually traversed by the frontier line. To the south, along the frontier of the Tanganyika Territory, are the Ruampara mountains and Rukiga highlands. In the extreme south-west three out of the eight cones of the Mfumbiro mountains are partly within Uganda. About 140 miles west of Lake Victoria, and rising from the depression of the western Rift valley, is the long lofty Ruwenzori range, one-third of which is in Belgian Congo.

Ruwenzori, which is almost insulated by Lake George, Lake Edward, the Semliki river, and Lake Albert, rises, at its highest point, to an altitude of 16,794 ft. All the drainage of this range, which is some 70 miles long by 30 miles broad, finds its way into the Nile.

Almost opposite Ruwenzori, on the other side of Uganda, to the north-east of Lake Victoria, is the enormous extinct

volcano of Mount Elgon. This again is crossed by the frontier, the eastern part of the mountain being in British East Africa. Lofty mountains stretch at intervals to the NNW. of Mount Elgon, such as Debasien, Kamalinga, Chemorongi, Moroto, Lobar, and Morongole. In the north-eastern corner of Uganda, overlooking Lake Rudolf, is Mount Lubur, again crossed by the frontier, while in the far north, along the Sudan border, about half-way between Lake Rudolf and the Bahr el Jebel, is the Agoro range, the highest point of which is over 10,000 ft.

The Protectorate includes four kingdoms, ruled over by native dynasties, Buganda, Toro, Ankole, and Bunyoro.

For administrative purposes the country is divided into five provinces, which, in turn, are subdivided into districts. The kingdom of Buganda also forms the province of that name. Toro, Ankole, and Kigezi constitute the Western Province. The Eastern Province, which includes the Kioga lake-system and Mount Elgon, is made up of the districts of Busoga, Bukedi, Teso, Lango, and Lobar. The Northern Province includes Bunyoro, Gulu, Chua, and the West Nile districts. The Rudolf Province, in the north-east, comprises that portion of the Eastern Rift valley which lies within Uganda, the districts of Turkwel and Dabossa, and the Turkana country.

The physical features of Uganda will be treated in the following order : first, the central depression, including the Victoria Nyanza, the Victoria Nile, and the Kioga lake-system ; second, the rest of the southern region ; and third, the northern region.

CHAPTER II

PHYSICAL GEOGRAPHY

PART I. SOUTHERN REGION. PART II. NORTHERN REGION

Part I. Lake Victoria—Victoria Nile—Lake Kioga, Lango, and Teso—Mount Elgon and Bukedi—Busoga—Buganda—Ankole—Kigezi—Western Rift Valley—Mfumbiro Mountains—Bufumbiro and Lake Mutanda—Lake Edward—Kazinga Channel and Lake George—Toro—Ruwenzori—Semliki Valley—Lake Albert—Bunyoro.

LAKE VICTORIA

THE Victoria Nyanza or Lake Victoria is the largest sheet of fresh water in the old world. It comprises an area of 26,828 square miles, about equal to that of Scotland. In shape it is an irregular quadrilateral, the northern shore, which is about 200 miles in length, coinciding approximately with the Equator. Except on the western side, which is comparatively straight, the coastline is deeply indented with gulfs, bays, and inlets. The greatest length of the lake, measuring diagonally from north-east to south-west, is 255 miles. The greatest breadth from Kisumu, at the head of the Kavirondo Gulf in British East Africa, to Sango Bay on the west coast, is 220 miles.

Lake Victoria lies at an altitude of 3,726 ft. above sea-level, and is thus the highest as well as the largest of the great African lakes, occupying a vast shallow depression in an elevated plateau.

All the streams which enter the lake within Uganda and British East Africa are permanent. On the east side numerous powerful and perennial streams descend into it from the forest-clad Mau highlands, which even in the dry season bring down a considerable volume of water. Other streams come in from the Kisii highlands and the Uasin Gishu plateau. On the west it receives, by means of the Kagera river, the considerable

rainfall from the mountains and highlands in the vicinity of Lake Kivu and the country north of Lake Tanganyika. The Victoria Nyanza thus constitutes a huge reservoir, and is the main source of the river Nile, which forms its only outlet.

On the northern shore, from the mouth of the Sio in the north-east corner, to the mouth of the Katonga in the north-west corner, no stream enters the lake. The most striking feature here is the proximity of the watershed to the shore. Only a few miles separate the lake from the head-waters of the streams which rise on the northern face of the hills bordering the shore, and flow northwards into the Victoria Nile. Though Mount Elgon is not far from the north-east corner of the lake, very little of the drainage of that immense mountain finds its way into the Victoria Nyanza.

The lake surface undergoes three distinct variations in level, a daily and an annual rise and fall, and a further variation extending over an interval of several years. The wind, which necessarily exercises a great influence on so vast a sheet of water, and tends to pile up the water in different parts of the lake, is probably the cause of the daily variation, which has at one point been found to reach as much as 20 inches.

The annual rise and fall is due to the rains, and is on an average of from 1 to 3 ft., the lake being highest in July and lowest in November.

With regard to the third variation over an interval of years, the European occupation has not yet afforded sufficient time for the collection of reliable data, but so far as these go, it appears that a seven years' fall is followed by a seven years' rise. Alterations in level of from 4 ft. to 4 ft. 6 in. have been recorded. The water of the lake is of a deep blue colour. It is fresh and good if taken a little distance from the shore, being in this respect a great contrast to that of most of the lakes in the two Rift valleys. In the gulfs, however, especially in the Kavirondo Gulf, which runs inland some 40 miles from the general shore-line, the water stagnates and is muddy, entirely losing the blue limpidity ordinarily characteristic of the Victoria Nyanza. The greatest recorded

depth is 270 ft., whereas in Lakes Tanganyika and Nyasa there are depths of from 2,000 to 2,500 ft.

The lake is remarkable for sudden and violent squalls, when the waves get up quickly and are very big. It is navigable by steamers of considerable draught, but great care has to be exercised in the channels between the islands and the mainland, owing to the presence of numerous sunken rocks. The lake is unlit, and boats anchor for the night in some sheltered spot. The Kungu fly crosses the lake in untold millions, forming thick clouds, which in the distance resemble the smoke of a steamer, hull down. Vessels passing through these insect-clouds are enveloped as by a dense fog, and, if moving in narrow waters, must slacken speed. The native name for the fly is Sami. The natives eat the flies, collecting them and making them into great cakes. Waterspouts occur occasionally, but the Kungu fly rising from the surface in tall hazy columns are often mistaken for them. There are many good sheltered harbours on the lake. Of these, Entebbe and Jinja are the chief ports of Uganda, Mwanza and Bukoba of the Tanganyika Territory, and Kisumu of British East Africa. The last named is the terminus of the Uganda Railway, which was run to the nearest point on the lake, though Kisumu is inconveniently placed as a port, lying as it does up a long shallow gulf.

The numerous islands of the lake vary in size from low guano-covered rocks and groups of piled-up boulders to those which are so large as to form a small region within themselves, fertile, forest-clad, and crowned with grass-covered hills. Most of the islands lie not far from the coastline. Those off the northern shore are so arranged as to form an almost continuous protected channel between them and the mainland, where navigation for small craft is comparatively safe and easy. The largest island in the lake is Ukerewe, in the south-east, in the Tanganyika Territory. The two most important groups in Uganda are the Sese Islands in the north-west, and the Buvuma Islands in the north. All the islands are now depopulated on account of the ravages of sleeping-sickness.

Lake Victoria is very nearly divided in half by lat. 1° S., which forms the boundary with the Tanganyika Territory, the northern and north-western portions belonging to Uganda. The Uganda coastline begins on the western shore at Luyana Bay, which opens to the north, and recedes south into the Tanganyika Territory. Between this and the little bay of Mizinda, to the north, is a long strip of sandy beach. Looking west the country inland appears as a vast swamp, out of which rise isolated hills, 4,000 to 4,300 ft. above sea-level. Mizinda is of special importance as being the only harbour on the west side of Lake Victoria within Uganda. The small island of Busungwe lies across the mouth of the bay and completely protects it to the east, leaving narrow entrances to north and south. The northern entrance is very shallow, but the southern has deep water. Behind Mizinda, which is on the south side of the bay, there is a steep cliff rising 150 ft. above the lake. Immediately north of the bay is the mouth of the Kagera river, which enters the lake over a broad fan-shaped bar, which can only be crossed by vessels not drawing more than 2 ft. of water. The Kagera, which has a course of about 400 miles, and is the largest affluent of the Victoria Nyanza, rises near the northern end of Lake Tanganyika, the farthest south of all the streams belonging to the Nile system. It flows nearly due north as far as lat. 1° S., when it turns abruptly eastward. The stream is navigable for 70 miles from its mouth as far as the Miningame Rapids (see above). From here to the lake it maintains a regular breadth of 100 yds. of clear water, fringed with belts of papyrus, and beyond this, on either side, a belt of dense tropical vegetation. The valley is flat, and suitable for road and railway construction. At its mouth it has a very strong current, much stronger than appears from the banks. There is a perceptible drift of water across the lake from the mouth of the Kagera to the exit of the Victoria Nile.

A beach of white sand extends for 4 miles north of the Kagera almost to Chiasimbe Point, backed by park-like country with fine trees. At Chiasimbe Point the coast bends

westward, and then NNE., thus forming Sango Bay. At the head of the bay is the estuary of the Bukora or Kibali river, where landing is practicable. The Bukora river is choked by papyrus reeds throughout its length, but is navigable by canoes through winding channels. From here the coast trends NNE. for 45 miles to Bukakata. On this stretch the country, as viewed from the lake, appears one vast forest, which comes down in most places to the water's edge. Towards Bukakata the shore-line rises in elevation, forming at Bukakata itself steep cliffs, 150 ft. above the lake, with a strip of beach beneath. Deep wooded ravines run down to the shore. Landing here is difficult.

Opposite Bukakata are the Sese Islands, 62 in number, 42 of which were formerly inhabited, before they were depopulated by sleeping-sickness. The Sese Islands are the most beautiful and fertile in the lake, and the scenery is curiously English-looking. Bugala, the largest of the group, twists in a remarkable manner for 40 miles, and resembles in shape the letter S, almost severed in the middle. Its northern part is low, flat, and densely wooded. In the centre there is a ridge of high down, covered with short grass, rising 325 ft. above the level of the lake. Bugala is separated from the mainland by the Bugoma Channel, 3 miles wide, and running NNW. and SSE.

From Bukakata the shore-line turns NNW. for 12 miles to the broad marshy delta of the Katonga river. All this north-western corner of the lake is very low and swampy, and the hills are at a considerable distance inland. Between the swamps and the open water of the lake are three large wooded islands. These, from south-west to north-east, are Banjako, Zinga, and Busi.

The northern shore of the lake consists generally of rounded hills, 400 to 500 ft. above the water, and jutting out into it in a series of rocky headlands. It contrasts with the western shore in being very deeply indented. Of its numerous bays and gulfs, the largest, from west to east, are Murchison Bay, Napoleon Gulf, Macdonald Bay, and Berkeley Bay. Two miles east of Busi Island a long peninsula runs out to the

south-west. It forms a low down, sloping gradually to the lake. On its eastern side is Entebbe, the administrative capital of Uganda. The country round is well-wooded. Reeds grow far into the harbour, and blend the deep green of the shore with the deep blue of the lake. Eastwards from here the coast is a succession of low palm-crowned headlands, creeks, and sand-rimmed bays. Mention has already been made of the continuous channel between the line of islands and the northern shore. The western portion of this channel, between the mainland round Entebbe and the northernmost islands of the Sese archipelago, is known as the Salisbury Channel, and has a breadth of from 9 to 10 miles. Seven miles east of Entebbe is Mbiru Point, behind which opens out Murchison Bay. Opposite the entrance, which is about 6 miles broad, there is a gap in the barrier of islands, and open water stretches to the horizon. Murchison Bay recedes 17 miles from the general shore-line in a NNE. direction. It is navigable throughout its whole length, and at its head is Port Bell, the harbour of Kampala (see below), with which it is connected by railway. In the southern part of the bay the land is low on either side, and the shore swampy. In the upper part, where it narrows towards its head, there are hills which come down to the water. East of the entrance to the bay the island chain begins again. The channel is here called Damba, and runs east and west between the island of that name and the mainland with a breadth of about 3 miles. At the eastern end of this channel, and NNW. of Damba Island, Buka Bay recedes almost due north for 5 miles with the small port of Kibanga on the western side of its head. The hills here rise very abruptly from the water with great outcrops of rock on their grassy slopes. Immediately to the south of Damba Island, and separated from it by a narrow strait, is Komi Island, which in turn is divided from the Sese Islands to the south-west by the Komi Channel.

East of the Damba Channel is the Rosebery Channel, which runs north-east and south-west for 35 miles. In places the chain of islands is very close to the mainland, and at its

narrowest the channel is not much more than a mile wide. It is so well sheltered that nothing but a strong south-westerly wind could raise a sea in it. Along the shore bays alternate with headlands. The hills are low, flat-topped, and bare. There are no bold or striking outlines, and the country has a desolate and empty appearance. The thickly populated and cultivated country lies 5 or 6 miles back from the lake. The Rosebery Channel opens into the Buvuma Channel, which extends north-east and south-west for 15 miles, between the mainland and the large island of Buvuma, with an average breadth of about 3 miles.

Napoleon Gulf, in the middle of the northern shore, is a large irregularly-shaped inlet, deeply indented with small bays. Many small islands dot the surface of this fine sheet of water. The entrance is nearly 3 miles across, between Nasu Point to the west, and a long narrow peninsula stretching westward from the eastern shore. Inside it widens out, and is divided into three main branches. Of these Jinja Bay leads WNW. to the Ripon Falls, and the outflow of the Victoria Nile, 6 miles from Nasu Point. On the northern shore of this bay is the port of Jinja, one of the principal harbours of the lake, and the terminus of the Busoga Railway. The station of Jinja is well situated on the high cliffs which rise abruptly from the water. The country in the immediate vicinity is bare and open, and devoid of shade. The soil is not good, and there is little cultivation. A strong hot wind blows continually from the lake and dries up everything. The second bay leading out of the gulf recedes due north, and is known as Fielding Bay. The third is Thruston Bay, which runs up north-east into the land for 8 miles, and is the most northerly part of the lake.

Directly opposite the entrance to Napoleon Gulf, 4 miles to the south of it, and masking it completely is Buvuma Island, 15 miles long, and 13 miles in greatest breadth. With its long attenuated peninsulas and deep bays it resembles in shape the island of Celebes in the East Indies. It is even more beautiful than the Sese Islands, and is like a little bit of England.

In the north-western corner the hills are thickly wooded. In the interior the bare grassy downs rise into mountains 2,000 ft. above the level of the lake. The name Buvuma is applied to seven islands, grouped round the entrance to the gulf. Two miles south of Buvuma Island is the island of Bugaia, about 5 miles long in a NNE. and SSW. direction. The channel between these two islands is practically land-locked and makes an excellent harbour. In the centre of Bugaia are low round-topped hills. The summits are bare, the lower slopes thickly wooded. A narrow channel, winding through a chain of small islands, separates the north-eastern side of Buvuma from the shore, which here forms the broad peninsula of Busamu. Both on the islands and mainland are low rounded hills and deeply wooded valleys. Off the southern end of Busamu is Dagusi Island, with Dagusi Passage, 1 mile broad, in between. Five miles NNE. of Dagusi is Ragwe Point, marking the western side of the entrance to Macdonald Bay, which recedes 9 miles northwards from the main shore-line. The coast between Macdonald and Berkeley Bays is divided into two inlets, themselves deeply indented, by a long narrow promontory to the south of which is Sigulu Island, 9 miles long in a WNW. and ESE. direction. The hills at the western end of the island rise 680 ft. above the lake-level. Between the promontory and the island is the narrow Ugana Passage. The British East African shore is 4 miles from the eastern end of Sigulu Island, with Sumba Island lying in between. Sigulu and Sumba lie across the entrance to Berkeley Bay, which is inserted in the north-east corner of the lake. The Sio river, which forms the frontier, enters the head of the bay, and a little to the west of it, just within Uganda, is the port of Mjanji. Some 10 miles south-west of Sigulu is a group of islands called Lolui, consisting of one large and three small islands, low rocky masses, covered with dense vegetation and thickly wooded. Since they lie on the nearest line north-west from the mouth of the Kavirondo Gulf to Jinja, they afford a convenient place of refuge from sudden squalls.

THE VICTORIA NILE

The Victoria Nile, the only outlet of Lake Victoria, pours out through a breach in the embankment at the north-west corner of Napoleon Gulf. A short distance below Jinja a distinct current is visible, flowing north. The channel narrows between the red forest-covered cliffs, and about 1 mile north-west from the landing-stage at Jinja the Nile leaves the lake over the Ripon Falls. The falls themselves are not particularly striking, being of no great height, perhaps 30 ft., and more like rapids than falls. They have been described as resembling the lasher of a Thames weir highly magnified, the weir being represented by a dyke of diorite. The banks are low, and do not set them off to advantage. But the great volume of rushing water, and the fact that this is the beginning of the Nile, which for centuries was a subject of so much mystery, combine to make the scene a very impressive one. The falls are 20 ft. in height, and the stream is divided into three channels by two rocky bush-covered islands. Numerous islands dot the surface of the water below the falls. On the western bank there is dense vegetation; on the eastern side are downs of short grass with occasional trees.

From the Ripon Falls the river flows in a general NNW. direction, through a deep gorge formed by wooded cliffs on either side. Through this gorge the Nile descends the reverse slope of the ridge which forms the northern shore of the lake. The river races along in a succession of rapids, which renders it unnavigable for some 35 miles. The country on both sides, above the gorge of the river, is flat and wooded with a marked northward slope. On the left bank is Buganda; on the right Busoga. Both banks are fringed with forest. On the Buganda side, the Mabira Forest (see below) approaches to within a mile of the river. In Busoga, behind the forest belt, there is dense elephant grass and thick bush. A railway, 61 miles in length, runs from Jinja to Namasagali, keeping at first well back from the river, as much as 10 miles in places, and then gradually approaching it. At Namasagali, which is about 40 miles from

Jinja by water, the Nile is three quarters of a mile broad, rather shallow, and with a broad papyrus fringe on the left bank. From this point it is navigable by steamers as far as Port Atura, a distance of 160 miles. Thirty-two miles from Namasagali the Nile enters Lake Kioga (see below). As this lake is approached the banks become increasingly swampy, and are covered with a dense growth of papyrus, so that it is impossible to get down to the water. Behind the swamps the country on both sides is covered with thick bush, that on the left being uninhabited on account of sleeping-sickness. The swampy Sezibwa river flows northwards, parallel with the Nile, at an average distance of 8 or 9 miles to the west. At its junction with Lake Kioga the Nile widens out into a large lagoon, and winds round the base of the Pegi hills, which rise 325 ft. above it on the eastern side.

The current of the Nile is distinctly discernible through the western part of Lake Kioga. It passes through the lake in a general WNW. direction for some 42 miles. There is a great accumulation of sudd here. At the end of 1917 there was a 10-mile block, and the steamer service was completely stopped. Seven miles west of the point where it enters the lake, it is joined by the Sezibwa river from the south. Just before its exit from the lake, the Nile passes across the entry to Lake Kwania, the north-eastern arm of Lake Kioga. The Nile leaves Lake Kioga 133 miles from the Ripon Falls, and flows almost due west for about 10 miles, forming for this distance the northern boundary of Buganda. The belt of papyrus swamp diminishes to a fringe, and to the south of the river is an open short-grass plain. The Victoria Nile then turns sharply to the north, receiving, at the angle, its principal tributary, the Kafu, which drains a large area of country to the south-west. The breadth of the Kafu at its mouth is from 300 to 400 yds., and in the rains the current is very strong. At its confluence with the Kafu the altitude of the Nile is 3,350ft. above sea-level. Three and a half miles north of the Kafu is Port Masindi on the left bank, whence a motor road runs west through Masindi to the top of the escarpment overlooking Lake

Albert, a distance of 78 miles. By this road travellers can reach Butiabwa, the port on Lake Albert whence steamers run down the Bahr el Jebel to Nimule in the Sudan. Two miles below Port Masindi the river turns ENE. for 15 miles, when it again resumes its northerly direction. A little below the bend is Palango on the right bank. The river here is some 400 yds. across, with a broad belt of swamp on the western side. At Port Atura, 62 miles from Lake Kioga, the Nile has broadened to 500 yds., and the Tochi river joins it, coming down from the Acholi country to the north. On the left bank, opposite Port Atura, is Foweira (Paoera). The river here is a strong broad silent stream, both banks flat and open, with occasional palm trees. Just below this point it ceases to be navigable.

After receiving the waters of the Tochi the Victoria Nile turns west, and for the rest of its course to Lake Albert forms the boundary between Bunyoro to the south and Gulu to the north. Six miles below Foweira are the Karuma Rapids, formed by a wall-like ridge of rock, 5 ft. high, that extends across the bed of the river. This is the first of a succession of rapids, which finally terminates in the Murchison Falls, where the Nile descends 400 ft. over the eastern escarpment of the Rift valley. The difference of level between Foweira and Fajao (Pajao), immediately below the falls, a distance of some 50 miles, is about 1,200 ft. Above the falls the slope of the river increases, and the channel narrows to 150 yds. There is first a fall of 10 ft., then another of 5 ft., after which the whole body of the Nile is suddenly contracted into a chasm, not more than 26 ft. in width, through which it rages furiously, and finally descends a third fall, 130 ft. in height. The cliffs on either side are covered with luxuriant vegetation, constantly drenched by the spray, which rises a quarter of a mile into the air, and upon which a double rainbow plays. Thousands of fish are killed by being carried over the falls, and the river beneath swarms with an incredible number of crocodiles. From the foot of the falls the river swirls along through a channel 100 yds. across, but rapidly widens to 500 yds.

At the village of Fajao on the south or left bank is the ferry by which the caravan route from Uganda down the Nile to the Sudan used to cross. Deep wooded gorges and cliffs run down to the river, which is flecked with masses of foam from the Murchison Falls.

For some miles down stream from Fajao the river winds between high wooded cliffs, then the banks get lower, and the swamps on either side increase, while branches take off to right and left forming islands. The average breadth of the main stream is about 200 yds. The left bank is thickly wooded, the right or northern bank is open grass. At 18 miles from Fajao the river begins to shoal. There are many sudd islands, and the side channels increase in number. About 250 miles from the Ripon Falls, the Victoria Nile enters the north-eastern end of the Albert Nyanza, through a delta more than 4 miles broad at its mouth, and covered throughout its area with tall ambach and thick papyrus. The main stream through the delta is fairly straight. The delta district is known as Magungu, the name of an old fort that once existed here on the left bank of the river. In its passage from Lake Victoria to Lake Albert the Nile falls 1,789 ft.

LAKE KIOGA—LANGO—TESO

Lake Kioga is the largest and most westerly of a long chain of lakes, swamps, and waterways, more or less choked with papyrus; which extends eastwards from the Victoria Nile to the foothills of Mount Elgon, and cover rather more than a square degree in area. The drainage from the northern and western sides of Mount Elgon passes through it into the Nile. The whole of this intricate and complicated system, including Lakes Kioga, Kwania, Kamoda, Salisbury, and Gedge, lies in a trough between the ridge of hills bordering the Victoria Nyanza to the south, and the watershed between the Nile and the Assua to the north. This latter follows a general east and west direction and is nearer the Assua than the Nile. The Kioga lake-system is mainly within the districts of Lango and Teso, but also borders on Bukedi to the south-east, and

Busoga to the south. The northern boundary of both Lango and Teso is formed by the river Assua. Lango is bounded on the west for 70 miles by the Victoria Nile, and on the north-west by the river Tochi, which joins the Nile at Port Atura. It is a flat country with very few hills, much of it covered with spear grass, 6 ft. in height, which the natives burn down in the dry season, and intersected with a number of sluggish swampy streams. The soil is of great fertility, especially round the north-east of Lake Kioga, where the country is densely populated and there is much cultivation.

Teso, which lies to the east and south-east of Lango, between Lake Kioga and Mount Elgon, is one of the richest districts of the Protectorate. Its light black soil and well-defined seasons are admirably adapted for cotton growing. It is densely populated, and there are few areas where there is no cultivation. In no other district is there such a marked absence of destructive wild animals. Lions are almost unknown, and there are no wild pigs, and though, owing to the swamps, there are swarms of mosquitoes, there are no ticks. There are many good roads, and the district is free from elephant grass. Away from the lakes and swamps the country consists of open rolling grass plains interrupted in places by piles of rocks. All the streams are swampy and choked with papyrus. The slope of the land is very slightly westward towards Lake Kioga, except in the north-west, where the streams flow north to the Assua.

Lake Kioga, which lies at an altitude of 3,520 ft. above sea-level, is a huge straggling sheet of water, the extended arms of which provide waterways in every direction. Channels have been cut and dredged through the sudd and papyrus, and the lake ports are now linked up by a service of shallow-draught steamers with Port Masindi and Namasagali on the Victoria Nile. The principal ports are Bululu in Lango, Agu in Teso, and Yingo in Busoga. The length of the lake is 85 miles in an east and west direction. Its breadth is about 10 miles, and the depth varies from 13 to 18 ft. As already stated the Victoria Nile flows through its western end. The

shore here runs north-west and south-east, and is fairly straight with no creeks or inlets.

The waterline of the lake, according to observations extending over some thirty years, has a periodical rise of about 8 ft., in cycles of approximately 8 years, the cause of which is as yet unknown. In 1917 it rose 10 ft., with disastrous effect on the lake ports and navigation. Two long branches or arms extend out of the main lake. Of these one stretches to the north-east and is known as Lake Kwania. It lies wholly within the district of Lango, and is long, narrow, and winding. Its depth is less than that of the main lake, but it is navigable by shallow-draught steamers for 40 miles, which is very nearly its entire length. On both shores are vast fields of papyrus, which rise like walls on either side of the clear channel. Concealed among them are the habitations of the Bakeni tribe, who beat down and interlace the papyrus stems to form the foundations on which they build their huts. A series of swamps and choked waterways lead out of its eastern end and connect it with the little-known Lake Kamoda to the north-east, which in its turn appears to be similarly connected with Lake Salisbury. Lake Kwania is separated from the main lake by a broad peninsula called Bwiro. This also is in Lango, and is practically an island. It is covered with low scrub and bush, and here and there are isolated hills. From its western end an immense field of sudd extends for 18 miles, dividing Lake Kwania from the Victoria Nile.

The other long branch leading out of Lake Kioga extends ESE. from the southern shore, and forms a broad gulf, at the head of which the Mpologoma river enters. The Busoga port of Yingo is situated on its southern bank, and at this point it is 5 miles wide. The mouth of the Mpologoma is closed by a barrier of papyrus, but there is a deep and continuous flow of water. The current of the river, entering Lake Kioga, strikes its northern shore and sweeps along it. This is said to be the reason why that part of the lake is comparatively free from the papyrus fields which in most places make all approach to its banks impossible. On the northern side of the

Mpologoma Gulf, a few miles above Yingo, one arm of the lake extends NNE. It is known to the people who live on its banks as Nagwo, and it eventually connects with Lake Salisbury. A navigable channel has been cut here as far as Agu, 5 miles west of the great trading centre of Ngora. This provides the most populous part of Teso with a port. There is no other part of Uganda where the population is more dense than it is here, round Ngora, except possibly in the Bugishu district on the foothills of Elgon.

The mainland between the Mpologoma Gulf to the south and the eastern part of Lake Kioga is also densely populated, and, like Bwiro, is practically an island, being almost encircled by the lake and its arms.

Towards its eastern end Lake Kioga is at one point narrowed to about a mile by a peninsula projecting southwards, at the extremity of which is the port of Bululu, the centre of a considerable trade in cotton, ground nuts, and simsim. Immediately opposite Bululu, on the southern or Teso bank, is Bugondo, behind which are the largest hills of the district, with a greatest altitude of 4,462 ft. Lake Salisbury lies to the east of Lake Kioga, from which it is distant some 12 miles. About midway between the two lakes is Soroti, the government station of Teso, healthily situated in a populous and cultivated area. Lake Salisbury is a long narrow sheet of water, 15 miles in length in an east and west direction, by 3 miles broad. It is mostly open and less liable to blockage by sudd than Lake Kioga. Swamps and choked waterways lead out of it in all directions. The channel by which its waters drain into Lake Kioga runs SSW. As far as Agu (see above) it is shallow and sudd-blocked. South of Agu, as already stated, a navigable waterway has been cleared. The river Soroko enters Lake Salisbury to the south-east, coming from the north-western slopes of Elgon. Lake Salisbury communicates with Lake Gedge, 4 miles to the east, by a narrow channel passing through thick barricades of sudd. Lake Gedge is about 5 miles long in an east and west direction, and $2\frac{1}{2}$ miles in breadth. It lies close up to the north-western foothills of Elgon. The river

Kiboko or Kilim, which rises on the northern slopes of the mountain, enters its eastern extremity. Great open grass plains extend to north and south, slightly undulating and very swampy in the rains, especially to the south.

MOUNT ELGON AND BUKEDI

Mount Elgon, which rises to the east of the trough containing the Kioga lake system, is an immense isolated volcanic mountain, covering an area approaching that of Montenegro, nearly two-thirds of which is in Uganda. It has no well-defined summit, being crowned by an enormous crater, the interior of which, 10 miles in circumference, resembles a plain surrounded by a circle of mountains. The crater is breached on the eastern side, forming a gorge, through which the river Turkwel flows out from its source in the crater plain. The highest point on the edge of the crater is 14,584 ft. Snow falls here but does not lie long. The mountain is crossed by a native track which passes through the crater plain and presents no special difficulties.

On the west the plain of Bukedi slopes gradually upwards to the foot of the mountain. The soil here is extremely fertile and well adapted for native agriculture. It is especially suited for cotton growing on account of its well-defined dry season. The station of Mbale at the foot of Mount Elgon is a great cotton-trade centre. From the Bukedi plain the mountain rises in steps, tier above tier, gentle slopes and plateaux alternating with cliffs, presenting in places precipitous walls 600 to 700 ft. in height, the whole rising to the great escarpment which, at a uniform height of 8,000 ft., extends in a semicircle from the British East African border northwards to Sebei (Save) in the north Bugishu country. A number of ridges spread out from the escarpment like the fingers of a hand, and usually end in an abrupt drop of several hundred feet to the Bukedi plain. Mount Kokinjero, a precipitous mass lying immediately behind Mbale, the capital of Bukedi, runs from north to south, and is joined to the escarpment by the Bukiga ridge. It is 7 miles in length, and its highest point

is some 3,500 ft. above Mbale, which itself lies at an altitude of 3,800 ft. above sea-level. Between the great buttresses of Elgon, which stretch far out into the Bukedi plain, lie broad and gently-sloping valleys, each with its swiftly-flowing stream of clear water. Instead of the tangled luxuriance of wild tropical vegetation, there is almost unparalleled cultivation. All through these valleys there are continuous fields of bananas, millet, and wimbi. Over 80 per cent. of the land is under cultivation, cut up into small rectangular plots, each carefully defined by hedges of giant thistles. The population on the foothills of Elgon is exceedingly dense, and dotted about everywhere are the neat dome-shaped huts of the Bagishu.

A broad belt of primaeval forest, mainly juniper and bamboo, lies roughly between the altitudes of 7,000 and 8,000 ft. on the west side of the mountain.

Of the western streams of Elgon the most important is the Siroko. It flows in a beautiful valley, which deeply furrows the mountain up to the crater, and runs in a north-westerly direction into Lake Salisbury. Other rivers are the Namatali, the Manafwa, and the Malawa, all tributaries of the Mpologoma.

The north-western slopes are watered by numerous streams of icy cold water and are particularly healthy. On the north side the mountain descends into the plateau of Karamoja. The soil of the foothills here is extraordinarily fertile, and the country is densely cultivated. To the north-east a long ridge stretches right out into the plain, dividing the valley of the Kiboko or Kilim river to the west from that of the Turkwel on the east. The station of Kilim, on the river of that name, is beautifully situated in the fertile north Bugishu country, and is a favourite halting-place for caravans. Eastward from here the lower slopes of Elgon are clad with forest intermingled with scrub that gradually becomes thinner, indicating a slighter rainfall than usually prevails on the western side. On the eastern side in British East Africa the slope is comparatively gradual, and is the least rich in vegetation.

Mount Elgon is remarkable for its caves, which occur on the

northern and southern slopes, usually close to the base of the great escarpment. They are found in the face of the cliffs at varying altitudes up to 8,000 ft. A number of these caves have their mouths concealed by waterfalls, and it is said that on an average there is a waterfall at every five miles round the mountain.

The bulk of the water from Mount Elgon finds its way into the Nile through Lake Kioga, and only a few streams, tributaries of the Nzoia in British East Africa, enter the Victoria Nyanza. The Turkwel and its tributaries flow northwards, and belong to the inland drainage system of Lake Rudolf.

To the south-west of Mount Elgon the country is all broken up into a mass of hills of varying height and steepness, which gradually give place to the level plain of Bukedi. In marked contrast to that part of the Protectorate which lies to the west of the Mpologoma river, the Bukedi plain is almost entirely free from elephant grass. There is no heavy bush or scrub, and papyrus swamps are comparatively scarce. There is a fair supply of water and, as already stated, it presents excellent conditions for cotton cultivation.

BUSOGA

To the west of Bukedi is the district of Busoga. It is almost entirely surrounded by water, having Lake Kioga to the north, the Victoria Nyanza to the south, the Victoria Nile on the west, and the wide-spreading Mpologoma river on the east. Where the last-named is crossed by the road from Mbale to Jinja it is $1\frac{1}{2}$ miles wide, and 6 to 8 ft. deep. The contrast in scenery between Bukedi and Busoga is very marked. To the east of the Mpologoma is the level plain of Bukedi, to the west the undulating country of Busoga. A constant succession of low wooded ridges strike north and south throughout Busoga, the intervening valleys being usually occupied with swamp-rivers. To the south, on the shores of Lake Victoria, these ridges terminate in clusters of well-defined peaks which rise from 500 to 600 ft. above the level of the lake. From the summits of these hills, which fringe the northern shore of the lake, the

whole land slopes down steadily to the north, with the result that the greater part of the drainage of the district flows in this direction, and not into the Victoria Nyanza. The streams, except close to their sources, seldom show running water, soon becoming choked with vegetation and degenerating into swamps, which become more and more extensive as Lake Kioga is approached. Except in the northern part, Busoga is still fairly thickly forested. There is a strip of very dense forest along the Victoria Nile, and round Iganga, which is about 11 miles north-east of Jinja, the trees are specially fine. Along the British East African frontier the country resembles the rolling down-land of north Kavirondo, and the streams are less choked. The boundary river, the Sio, is a sluggish stream about 30 yds. wide, with reed-covered mud banks, flowing through a flat swampy valley. Busoga is a district of great natural fertility. At one time it was the garden of Uganda, and a thriving populous province, but sleeping-sickness has depopulated the southern part, and let in the jungle. Large areas are covered with elephant grass and scrub, but the former is not so dense as in Buganda. Round the towns and villages there is a good deal of cultivation, and there are many large cotton plantations, Kamule, about 30 miles north of Jinja, being a centre of the industry.

BUGANDA

The native kingdom of Buganda, which constitutes the province of that name, lies along the western and north-western shores of Lake Victoria. It occupies roughly about a quarter of the lake's total coast-line, from the outflow of the Nile to the former German frontier. To the east and north Buganda is bounded by the Victoria Nile and its tributary, the Kafu, while on the west it reaches to the shores of Lake Albert in a strip of wild hilly country known as Buyaga, which is inserted between Bunyoro on the north and Toro on the south.

Buganda is for the most part an undulating plateau of rolling downs and rounded or flat-topped hills. In every intervening valley there is a swamp or swamp-like river. There is

a great lack of open water, and a real running stream is scarcely to be found. Every watercourse is choked with vegetation, so that from a height the water is often not visible, and the broad valley seems a stretch of bright green grass. Hill and dale succeed one another with monotonous regularity, and on every hand luxuriant vegetation, both wild and cultivated, covers the whole face of the switchback-like landscape. The hills, which rise from 300 to 400 ft. above the valleys, are often clothed from base to summit with banana groves. Sometimes the valleys are filled with forest, which can hardly be surpassed anywhere in splendour of vegetation and loftiness of trees. Much of Buganda was formerly unbroken tropical forest, and forests of considerable extent still exist in many parts, the two largest being the Mabira Forest in Chagwe and the Tero Forest in south Buddu. The soil is red in colour and of marvellous fertility. Great areas, however, are covered with dense elephant grass, often more than 10 ft. in height, which obscures the view and impedes movement off the main roads and tracks. Kampala or Mengo, the capital of Buganda, is situated 23 miles to the north of Entebbe, with which it is connected by an excellent road. The intervening country is singularly beautiful, and the road passes in turn through dense forest, across open down-like country, and through great stretches of elephant grass. The landscape round Kampala is characteristic of Ugandan scenery, consisting of an endless succession of hills, clad with banana groves, and not very tall forest, interspersed with broad undulating valleys, at the bottom of which are sometimes sheets of gleaming water, and always swamps. Kampala is built upon seven hills, which lie in a semicircle and are very steep and distinct. The intervening swamps have been drained, and good roads now lead from hill to hill through shaded valleys. These hills are Nakasero the business centre; Kampala itself; the twin hills of Namirembe, which are the head-quarters of the Church Missionary Society; Mengo, the royal hill, with the palace of the Kabaka upon it; Rubaga, on which stands the Roman Catholic Mission; and Kibuye. In the valley at

the foot of Nakasero, the railway winds down to Port Bell, 7 miles to the east, at the head of Murchison Bay.

The county, or 'saza' of Chagwe (Kiangwe), lies to the east of Kampala. The first reaches of the Victoria Nile, below the Ripon Falls, divide it from Busoga to the east. Its southern boundary is the lake shore between Murchison Bay and Napoleon Gulf. The country consists of a succession of parallel ridges running NNE. and SSW. In some of the valleys near the lake there are clear streams, with large forest trees on their banks, but lower down they become swampy and choked with vegetation. The principal river of Chagwe, next to the Nile, is the Sezibwa. As stated previously the watershed is remarkably close to the northern shore of the lake, and the Sezibwa rises only 2 miles from it. Flowing at first WSW., roughly parallel with the lake-shore, it bends round to the north, and eventually joins the Nile at Lake Kioga. At a place called Mokono, 13 miles due north of Lake Victoria, a little to the south of the road between Kampala and the Ripon Falls, there is a fine waterfall on the Sezibwa, 40 ft. in height. There is a good deal of papyrus at the top of the falls. The country round is thickly wooded. The centre of Chagwe is occupied by the Mabira Forest, which lies between the Sezibwa to the west and the Victoria Nile to the east. It has an area of 140 square miles, and is the most accessible, as well as being one of the richest forests in the Protectorate. Owing to its proximity to Kampala, Jinja, and the Victoria Nyanza, its products can easily be placed on the market. Chagwe is the most important part of Buganda, and the majority of the white settlers have taken land there. North of Chagwe is the saza of Bugerere, a long narrow peninsula 8 to 9 miles in width, but narrowing to 3 miles at its northern end. It runs northwards to Lake Kioga, between the Sezibwa and the Victoria Nile. The Sezibwa has a constant breadth of 2 miles. It is covered with papyrus, and is remarkably full of fish. Practically the whole of Bugerere is covered with thick bush and elephant grass.

To the west of Kampala is the small saza of Busuju. It

contains the greater part of Lake Wamala (see below), and a certain number of saddle-backed hills, where there is good grazing.

Bulamwezi, Buruli, and Singo, constitute together the northern part of Buganda. Bulamwezi, to the north of Kampala, and west of the Sezibwa river, is the most thickly populated district in Buganda, and has excellent short-grass pasture, the best grazing in the country. Buruli lies to the north of Bulamwezi, between Lake Kioga on the north-east and the lower reaches of the Kafu on the north-west. It is covered for the most part with thick bush. There are a few open parklike spaces. Singo is the district to the west of Bulamwezi and Buruli, and extends northwards from Lake Wamala to the Kafu. There is a certain amount of good short grass, but the bush-covered plains of Singo are almost uninhabited. Towards the Kafu, both in Singo and Buruli, the soil becomes whitish and strongly impregnated with salt.

This northern part of Buganda is traversed by several swampy streams, flowing northwards into the Kafu. The two most important are the Mayania or Maanja, and the Lugogo. The former and more westerly of the two rises in the neighbourhood of Kampala, on the hills close to the shore of Murchison Bay, and divides Singo to the west, from Bulamwezi and Buruli to the east. It has an average breadth of 200 yds., and is usually very deep. The Lugogo rises some miles to the north of Kampala, and roughly bisects the counties of Bulamwezi and Buruli. The river Kafu, which forms the boundary between Buganda and Bunyoro, rises in Bunyoro about lat. 1° N., and has a length of about 75 miles. At its source there is a very narrow divide between the streams flowing west into Lake Albert from those flowing east into the Nile. The general direction of the Kafu is at first ENE., until its junction with the Mayania, when it bends north-east. After receiving the Lugogo its course becomes almost due north. It enters the Victoria Nile at the deserted station of Mruli. The plain on either side of the Kafu, from the point where it issues from the hills of Bunyoro to its mouth, is remarkably flat. From

any height the valley is clearly marked like a broad ribbon dividing Bunyoro from Buganda. There is no good timber in the valley. In the dry season the Kafu is stagnant, and there is hardly any visible motion in its papyrus-choked waters, which have a most offensive smell. In the rains, however, there is a very strong current. Enormous swamps occupy a large part of the valley of the Kafu, and in the rainy season are quite impassable.

From the shore of Lake Victoria the ground rises gradually to the west. In the 184 miles between Entebbe and Fort Portal, under Ruwenzori, on the plateau of Toro, there is a rise of 1,165 ft. This ascent may be divided into three sections, corresponding to separate river systems. The first of these extends to Mubendi, and belongs to the drainage area of the Katonga, into which all the streams of this section find their way southwards. The colour of the earth throughout this region is brick-red. The high ground and the tops of the hills and their slopes are covered with deep grass. The valley bottoms are clothed with forest and contain vast swamps. The district is populous, but the inhabitants are so hidden away among their banana groves and the long grass, that it is possible to pass quite close to their villages without noticing them. Between Entebbe and Lake Wamala, 40 miles in a WNW. direction, the hills and ridges are very near to one another, and the road runs continuously up and down steep inclines. From Lake Wamala westwards the hills and ridges are farther apart; there are intervening plains, and the swamps are less trying.

Lake Wamala lies 40 miles west of Kampala. It has an area of 87 square miles, with a length of 10 miles in a WNW. and ESE. direction. There are four islands, of which the largest, Bagwe, is inhabited by fishermen. Bagwe rises out of the centre of the lake like a saddle-backed hill, and is very pretty and wooded. The lake is surrounded with a broad belt of swamp, and floods extensively in the rains, when the plains of Busuju and southern Singo in its vicinity become a morass. Several swamp-rivers enter the lake, some of them

of great breadth. The outflow is south-west into the Katonga by means of the swamp-river Kibimba. Mityana, on the road to Mubendi, lies on the edge of a valley running down into Lake Wamala, from which it is about 5 miles distant to the north-east. To the west of Mityana is a great swamp, which is really an arm of the lake, extending in a north-east direction. The natives call it Mpamujugu.

The first section ends at Mubendi, which is 104 miles west of Kampala by road, and forms a half-way house between it and Fort Portal. Mubendi is situated at an altitude of 5,121 ft., on a long hill, some 10 miles in length, which rises very abruptly 500 ft. above the surrounding country. There is no other hill of a similar type for miles. It is very steep, and a motor road winds up its face. The hill is open and covered with short grass, except in the few small valleys which are filled with trees. Mubendi seems likely, from its central situation and comparatively bracing climate, to become a local health resort.

The second section in the ascent from Entebbe to Fort Portal contains the tributaries of the Muzizi, which flows WNW. into Lake Albert, and forms almost from its source the boundary between Toro and Buganda. Both the Muzizi and the Ngusi river, to the north of it, have their sources in the neighbourhood of Mubendi. The country between these rivers, to the north of Mubendi, is covered with dense elephant grass.

The third section is beyond the boundary of Buganda, and forms the watershed between Lake George and Lake Albert in the district of Toro.

All that part of Buganda which lies south of the river Katonga is comprised in the district of Masaka. It contains four counties. Of these Buddu extends along the western shore of Lake Victoria from the Katonga to the frontier, and Mawogola, Kabala, and Koki, from north to south, lie behind it to the west.

The river Katonga, which thus constitutes a marked division of Buganda from east to west, rises in the plateau east of Lake George, and after a sluggish course of 155 miles, in

a general easterly direction, enters the north-western corner of Lake Victoria, through a wide swampy delta 8 miles in length. Just above this delta it is 3 miles broad, resembling a swamp-lake rather than a river.

A belt of forest, 2 to 3 miles in breadth, extends along the shore of Budu from the Katonga to the Bukora or Kibali river. Between the latter and the Kagera river is the forest of Tero. This is one of the great forests of the Protectorate, with an area of between 150 and 200 square miles. Owing to its being only a few feet above the level of the lake, it is very swampy, and during the rainy season, from April to the end of July, the forest is in a waterlogged condition and quite impassable. West of the forest belt a great swampy area, 5 miles or more in breadth, extends north and south parallel to the lake. This swamp drains into the Bukora river, and within it is situated the small lake of Nabugabo, a circular sheet of water covered with papyrus between 4 and 5 miles in diameter. It is a little more than 2 miles from the Victoria Nyanza, and some 10 miles west of Masaka. Beyond the swamp is a line of low cliffs, running nearly due north and south from the Katonga to the Kagera. Above the cliffs there extends a wide open undulating plain broken by copses and clumps of trees. The soil is extremely fertile and of the same red colour found in most parts of Buganda. West of the plateau the country assumes the typical character of a succession of low hills and swampy hollows. The station of Masaka is situated on a flat-topped hill, some 23 miles from its port of Bukakata on the lake, and 80 miles south-west of Kampala. From the top of the hill the view ranges over an endless succession of rounded hills, and a network of swamps, filling the intervening valleys. In south-west Buddu, towards Koki, there are great grazing plains with occasional patches of bush. The soil of Koki is much poorer than that of Buddu. It is white and very trying to the eyes along the roads. There are two considerable lakes in Koki—Kijanebalola and Kachira. The former really consists of two lakes, separated by a very narrow swampy isthmus which is covered in the rains. The extreme length, in a WNW. and

ESE. direction, is a little over 12 miles. The outflow of the lake forms the Bukora or Kibali river, which enters the Victoria Nyanza at Sango Bay. A line of swamps, with patches of open water, connects Lake Kijanebalola with the Ruizi river, and also with the southern end of Lake Kachira, 9 miles to the west. Lake Kachira is 14 miles in length in a NNE. and SSW. direction, and about 1 mile broad, the boundary between Koki on the east and Ankole on the west passing through it. The mosquitoes are very trying round the lakes, and at times there is a bad smell from the waters. Apart from these lakes and swamps Koki is an open rolling pastoral land, covered with grass and bare of trees. The country in Kabula is of a similar character.

Some 6 miles west of Masaka, on the road to Mbarara in Ankole, a range of low hills is crossed. The country rises in level, the hills become higher, cultivation more scanty, and the scenery generally wilder. Near Malongo, about 58 miles west of Lake Victoria, a great bare hog-backed mountain rises to the north. To the west long valleys run up, enclosed between ranges of thickly-wooded hills, and containing large swamps which drain south into Lake Kachira. As the boundary between Buddu and Ankole is approached, the hills again become lower, and the swamps broader and more frequent, a type of country which extends some 10 or 12 miles into Ankole before giving place to high bare grass-covered hills.

ANKOLE

The district of Ankole extends from Lake Kachira to the eastern shore of Lake Edward, and from the southern shore of Lake George on the north to the frontier of the Tanganyika Territory on the south. No other district in Uganda comprises such varied types of country, mountain, and forest, high open grassy downs, broad plains, swamps, and crater lakes, while the altitudes are from 4,000 to 8,000 ft. Ankole might be called the ranchland of Uganda, containing, as it does, mile after mile of richest pasture. Together with Ruanda and

Urundi, Ankole constitutes a huge cattle area, estimated to contain from four to six million head, and placed in an isolated position, being practically surrounded by broad belts of country infested with tsetse fly.

As already stated, for some little distance from the Budu boundary there is a tract of low hills and swampy valleys. West of this is Nsara, a district lying to the north-west of Mbarara, where rolling stretches of grassland give ample pasturage for the famous long-horned Ankole cattle. The absence of trees is very striking. The valleys are full of dense jungle, and in the dry season water is a serious difficulty.

Mbarara, the head-quarters of Ankole, is situated on the summit of a flat-topped hill, at an altitude of 4,832 ft., with an extensive view all round. It lies in the middle of a wide expanse of undulating short-grassed country. With increasing population more of the land is being cultivated, but in the main villages are scarce. To the south of the hill on which the station is built, the river Ruizi runs in a deep gorge. This river has its source in a swamp a few miles to the south-west of Mbarara. Some 20 miles ESE. of the station it loses itself in a vast area of swamps and lakes, which connect eastwards with the Bukara river, and also southwards through Lake Nakivali and the river Orichinga with the Kagera. West of Mbarara is an extensive plateau, very fertile and densely cultivated, open and generally flat, but broken at intervals by gently swelling elevations. On the south this plateau is bounded by the Ruampara Mountains, at the foot of which the Ruizi runs. Several swampy streams cross the plain, all of which drain into this river. West of the plateau the land rises sharply. Water is very scarce here, and has to be brought from a long distance. The Kandeki river, a swampy stream running south to the Ruizi, may be taken as marking the beginning on the east of the stretch of mountainous country which occupies western Ankole and extends to the escarpment of the Rift valley above Lake Edward. These mountains strike in a general north and south direction, and increase in height to the north, where, in the hilly district of Buhwezu,

altitudes of over 7,000 ft. are attained. The scenery is very beautiful, resembling that of the Alps or the lower Himalayas. The climate is temperate and the water-supply abundant. On the western side of these mountains there are great areas of dense forest, such as the Kalinzu Forest, about 50 miles from Mbarara, overlooking the escarpment of the Rift valley. Belts of thick forest run down from the edge of the escarpment and gradually merge into the dense bush on the hot unhealthy lowlands that extend along the shores of Lake Edward. To the north of the Kalinzu forest, on the western side of the Buhwezu mountains, near the edge of the escarpment, is a curious and interesting district of craters and crater lakes. The landscape is a unique one, as the entire area is riven by these craters, as close together and as regular as the cells of a gigantic honeycomb. The track winds among them, often on a high narrow ridge, which forms the rim or separation between two of these craters. They are generally circular enclosures, with steep and occasionally vertical sides, forming inverted cones. In some there is a lake; others are dry; one or two are planted all over their sides with bananas. A similar formation occurs on the floor of the Rift valley below. One of the most striking of these lakes, Lake Nkuguti or Kagoto, lies just to the west of the Mbarara road, situated at the northern end of a deep valley, once the crater of a large volcano. The rocky mass of Kasunju (5,994 ft.) falls down into the lake on the west in one sheer precipice from summit to base. The top of the hill is covered with thick forest. East of this crater region is another of the great forests of western Ankole, known as Kasyoha, through which the river Chiambura flows north-west to the Kazinga Channel (see below). The village of Kichwamba, situated among large banana plantations, on the edge of the escarpment, to which it here gives its name, marks the point where the road from Mbarara descends into the Rift valley. A magnificent view can be obtained from this place over Lakes Edward and George. In clear weather there is no finer view anywhere of the snow peaks of Ruwenzori, seen across the great plains round Lake George to the north. Far to the

south-west the great cones of the Mfumbiro mountains are visible.

The road from Mbarara to Kigezi diverges to the south-west, passes to the north-west of the Ruampara range (see below), and traverses the district of Kazara, where there is much cultivation. Just on the boundary between Ankole and Kigezi the road skirts the western end of Lake Karengé. This is an important point, as it marks the watershed between the Victoria Nyanza and the Western Rift valley. From the shores of the Victoria Nyanza to Lake Karengé, which lies at an altitude of 4,558 ft., the rise is a perfectly gradual one of approximately 830 ft. Lake Karengé itself belongs to the Kagera system, and is the source of the Rufua river, which flows ESE. into the Kakitumba on the frontier. Immediately to the west of Lake Karengé is the Ruakatenge swamp, the source of the Berarara river, which flows into Lake Edward. Lake Karengé is 3 miles long in an east and west direction. It is singularly beautiful, with open grassy banks and clear water. There are many tiny islands.

The other mountain district of Ankole is the Ruampara range, which strikes east and west along the frontier for 60 or 70 miles. Mbarara lies to the north across ten miles of intervening plain. To the south of the range the Kagera flows in a series of rapids. The average altitude of these mountains is from 5,000 to 6,000 ft. They are largely covered with thick thorn-bush. The range is deeply intersected by a network of meandering valleys, narrow and steep-sided, and often a thousand feet in depth. As a rule they contain no running water, but are filled with swamps. Numerous springs occur high up on the sides of the valleys at altitudes of about 4,700 ft.

The southern part of the Ruampara range, and all the country south-west from here on either side of the frontier, is known as Mpororo. South-west of the Ruampara mountains, in Mpororo, is an extensive tract of open country, called Rushenyi, bounded to the north and east by the river Rufua (see above). It is very hilly and undulating, treeless except for small thorns, and covered with short grass, providing

pasture for enormous herds of cattle. The water-supply is poor, but the herdsmen can generally get water by digging holes in the ground.

KIGEZI

The district of Kigezi comprises the south-western corner of Uganda. Kigezi means the little lake, and was the name of the original government station, which was situated near the small lake of Muanga. Since then the seat of administration has been removed first to Kumba and then to Kabale, east of Lake Bunyoni. The country to the south of the frontier is the new mandatory territory of Belgian Ruanda, and the extreme south-western part of Kigezi is a small portion of Ruanda, situated within the Protectorate. It is through this district that the Western Rift valley enters Uganda. Most of the drainage of Kigezi is carried into Lake Edward by three rivers, the Ruchuru, the Ishasha, and the Berarara (or Ntungwe).

The open country of Rushenya is bounded to the west by a line of marginal hills, which rise very abruptly above it, and mark the boundary between Ankole and Kigezi. This line starts in the north at Mount Ihunga (7,175 ft.), a bold striking isolated height, a little to the south of the Mbarara-Kigezi road. Thence it extends SSE. to Mount Buramma on the frontier. These hills form the eastern limit of the Rukiga highlands, which stretch westward to the Rift valley. Rukiga is a broken and impassable country. Most of the hill-tops are over 7,000 ft., the highest being 8,500 ft. There are, however, no bold or well-defined summits, but rather gigantic undulations or ridges, striking generally north-east and south-west, with lakes and swamps in the valleys. To the south it falls down in a bold escarpment, beyond the frontier into the plain of Ruanda. Its northern limit is the river Berarara. Bracken, bramble, and high grass cover the hills, broken only by patches of cultivation round the widely scattered villages. The Rukiga swamps are very remarkable. The most extraordinary is the Kaniamagogo swamp, which drains north-west

into the Berarara. It occurs where a turbulent and rushing stream would be expected, and in some respects its course resembles that of a glacier. In spite of the frequent heavy rain over this region, no apparent stream exists, except near its junction with the Berarara. The surface is covered with a dense growth of reeds.

Lake Bunyoni, in south-western Rukiga, is the largest of the highland lakes, having an extreme length of 15 miles. There are many small islands in the centre, where the narrow winding lake broadens to about 3 miles across. To the south it divides into two long finger-shaped bays. It lies at an altitude of 6,474 ft., and is very deep and cold. So abrupt are its sides, and so deep the valley in which it is contained, that it is invisible until the mountains overlooking it are crossed. Marshy valleys lead up from it into the hills. To the west of the lake, just within Uganda, is Mount Mabaremere (8,474 ft.). There is dense bamboo forest to the north and south of this mountain. A strip of country down the west shore of Lake Bunyoni, and including the bamboo forest, is inhabited by the Batwa, a race of savage pygmies. Some of the largest of the Rukiga swamps are in the vicinity of the lake. To the east is the Kiruruma swamp, the source of the river Ishasha, which flows north-west into the Rift valley, when it turns almost due north to Lake Edward, forming here the Uganda-Congo boundary. Another immense swamp, that of Ruhuhuma, lies to the north of the lake. The country to the north of this swamp is covered with the densest forest, which extends from the Belgian border on the west to as far east as long. 29° 50'. Kayonsa, a small district, which is really a north-western extension of Rukiga, is also densely forested. Outside the forest there is much long grass, and the country is very difficult, though well-watered by many clear ice-cold mountain streams, tributaries of the Ishasha. This river, which forms the northern boundary of Kayonsa, is a swift stream, flowing north-west through a rocky channel, with a belt of dense forest on either side. Beyond the valley of the Ishasha, the country falls down northwards, through the foothills of the Rukiga

highlands, to the Berarara river. The Berarara, as already stated, has its source in the Ruakatenge swamp, close to the western end of Lake Karengé, an extremely narrow watershed dividing here the streams flowing west into the Rift valley from those flowing east into Lake Victoria. In its upper reaches it is known as the Kahlenji or Chombo river. It flows first to the west, and then, like the Ishasha to the south, with which its course is roughly parallel, bends away to the north, descends into the Rift valley, and enters Lake Edward. In its lower course it is called Ntungwe. Before entering the Rift valley it flows through a deep, steep-sided ravine, which is very difficult to cross, entailing a climb a thousand feet down and then a thousand feet up. North and west of this river the country bears the name of Ruzumburu. It is an open undulating plateau, 1,000 ft. above Lake Edward, with a cool healthy climate and a productive soil. In places there is long grass, but for the most part it is short grass and treeless, and supports large herds of cattle.

THE GREAT WESTERN RIFT VALLEY

The general character and position of the Western Rift valley have already been described (see General Description). That part of it which forms the western boundary of Uganda is the northern portion of a great curve which, branching north-west from the Eastern or Main Rift valley to the north of Lake Nyasa, sweeps round through a chain of great lakes to the north-east. Its general direction, where it borders on Uganda, is NNE. and SSW. It contains Lakes Edward, George, and Albert, which, unlike the lakes of the Eastern Rift valley, communicate with one another; Lake George being joined to Lake Edward by the Kazinga Channel, and Lake Edward united to Lake Albert by the Semliki river. These lakes, of which only Lake George is wholly within Uganda, form great natural reservoirs for the supply of the Nile, their waters uniting with those of the Victoria Nile in Lake Albert, whence the Western Rift valley is continued northwards by the Bahr el Jebel.

The valley varies in breadth from 20 to 50 miles, and in depth from 1,000 to 5,000 ft., from its floor to the summit of the escarpment above it.

Across Lake Edward the eastern side, in Belgian Congo, is very much higher than the western side, in Uganda: the former rising some 3,000 ft. above the lake-level. North of Lake Edward the valley is bifurcated by the Ruwenzori range. One branch diverges to the north-east and contains Lake George. Beyond this lake the fault-lines bend to the west and merge in the high plateau of Toro. The valley thus comes to an end east of Ruwenzori. This eastern branch probably represents the bay of an immense lake which once covered all this area, so that it would almost seem that at one time Ruwenzori was virtually a mountain-island, encircled by lake-like branches of the Nile. Meanwhile the main branch passes to the west of Ruwenzori, down the Semliki valley. Here the western wall becomes inconspicuous for a time in the gloom of the great Congo Forest. On the other hand, its neighbour to the east culminates, above the Semliki valley, in the unique heights and precipices of Ruwenzori. The escarpments on either side of Lake Albert are very fine, the Mahagi escarpment bordering the lake on the west with its steep precipices rising 5,000 ft. above the water. The Victoria Nile descends into the Rift valley over the eastern escarpment at the Murchison Falls. To the north of this the eastern wall rapidly decreases in height, and becomes comparatively insignificant, though it by no means fades away. On the other hand, the bold western wall continues down the valley of the Bahr el Jebel, beyond the frontier of Uganda, almost to Rejaf.

THE MFUMBIRO MOUNTAINS

The Mfumbiro mountains are a volcanic range, consisting of eight cones. They extend in a chain from east to west across the Rift valley, which is here about 30 miles in breadth. The range thus forms a huge transverse dam stretching completely across the floor of the depression, between Lake Kivu to the south and Lake Edward to the north, and separating

the great lakes into two series, those which belong to the Congo system, namely Kivu and Tanganyika, from those which belong to the Nile system. The mountains fall naturally into three distinct groups, of which the eastern group alone is partly within Uganda. This group consists of three extinct volcanoes, the largest and most easterly being the enormous cone of Muhavura, 13,547 ft. in height. and the third highest in the range. It is treeless, but is covered with a scrub not unlike broom, and with giant heath. There is a small depression near the summit, now occupied by a swamp, which may be the remains of a volcanic vent. The flat stunted cone of Mgahinga (11,400 ft.), the next mountain to the west, is covered up to its summit with a dense growth, chiefly bamboos, intersected by the tracks of elephant and buffalo. It has a large well-formed crater, 300 yards across and 300 ft. deep, with an outlet on the south-west side, through which passes the overflow of the swamp which occupies the crater floor. Mgahinga is joined by a saddle to the third mountain Sabinio (11,960 ft.) on the summit of which the frontiers of Uganda, Belgian Congo, and Belgian Ruanda meet. The sides of Sabinio are deeply scored with broad V-shaped clefts, filled up to an altitude of about 10,000 ft. with bamboo forest, which everywhere clothes the lower slopes of the mountain. Karisimbi (14,780 ft. the highest summit of the range, a beautifully-shaped cone, and always snow-covered, lies to the south-west on the boundary line between Belgian Congo and Belgian Ruanda. This mountain, with Visoke (12,175 ft.) to the north-east, and Mikenno (14,540 ft.) to the north-west, constitute the second group. Visoke has a huge crater, perfect in form. Mikenno is so denuded that there is no trace of a crater. It is very conspicuous, being surmounted with a huge tooth of rock. The two remaining mountains are still active volcanoes, lying directly to the north of Lake Kivu in Belgian Congo. They are Cha Nino Gonga (11,386 ft.), which has three craters regularly disposed from north to south, and Namligira (10,046 ft.), a long flat-topped mass of recent formation, the most westerly summit of the range. The whole appearance

of the Mfumbiro mountains is magnificent and impressive in the extreme : their height and steepness are so evident, and they rise with such sudden and startling abruptness. The name Virunga or Kirunga, sometimes given to the range, simply means a mountain.

BUFUMBIRO AND LAKE MUTANDA

North of the Mfumbiro mountains the floor of the Rift valley consists of a vast lava plain which slopes steadily down to Lake Edward. It is divided into three zones which run lengthwise from south to north. The most westerly zone is a tumbled mass of volcanic rock, most difficult to cross, without tree, shrub, or vestige of grass, everything having been submerged by recent lava flows from Namligira and Cha Nino Gonga. In the central zone the lava is covered with forest, which ends very abruptly to the west. The eastern zone, which is partly within the limits of Uganda, is a rocky lava plain extending due north from Muhavura, Mgahinga, and Sabinio. The western portion across the frontier in Belgian Congo is called Zomba, the portion in Uganda is known as Bufumbiro. It is grass-covered, with patches of tall thistle-like bush, very dense and prickly, and supports large herds of cattle. The soil, though of no great depth, is fertile and much cultivated. The plain is honeycombed with holes and caverns, and often rings hollow under foot. There are no streams, the water percolating into these subterranean caverns. The eastern side of the plain is a remarkable country, a mass of craters, volcanic cones, and fantastically-shaped hills and hollows. The cones, almost without exception, have a steep slope on the south-east side, and a long and gentle slope to the north-west. The eastern boundary of the Rift valley is here formed by a line of marginal hills, the western limit of the Rukiga country. There is nothing that can be called an escarpment on this side until north of Mount Nkabwa (see below). Bufumbiro is bounded to the north by a westward projection of the Rukiga highlands, so that the valley here is greatly narrowed. Round the edge of the plain to the east and north are a number

of lakes lying among the hills. Of these by far the largest is Lake Mutanda, situated at the northern extremity of the plain, about 9 miles due north from the summit of Muhavura. This lake lies in a depression almost completely surrounded by bold rugged hills, at an altitude of 5,877 ft. It is of no great depth, but its waters are considerably colder than the atmosphere. Subterranean springs probably feed it, as, except occasionally, no surface waters find their way into it. At its south-western end the river Ruchuru, here called the Kako, escapes through a gap, and after making a big elbow-bend first north-west and then south-west, finally flows north to Lake Edward in a series of rapids and falls. There are many villages in its valley, and the country is covered with short grass. The waters of Lake Mutanda, Lake Muanga, (a little more than a mile to the east), Lake Bunyoni, and the Ruhuhuma swamp are connected up from east to west, and flow into the Ruchuru, being divided from the Ishasha river by a great mass of mountainous country which stretches north-west from the northern end of Lake Bunyoni to Mount Nkabwa.

* This latter stands out very prominently on the eastern wall of the Rift valley, overlooking the lava plain which slopes down northwards from the Mfumbiro mountains to Lake Edward. It rises to an altitude of 6,165 ft., and the Uganda-Congo boundary crosses its summit. At Mount Nkabwa the Rift valley turns NNE. North of the mountain there is still for some distance nothing that can be called an escarpment, a line of foothills connecting the lowlying plain with the mountainous country above it to the east. Farther north the escarpment begins to be discernible, and beyond the Rusaiya river, a tributary of the Berarara, it has become a well-marked prominent feature, and runs north-east and south-west, overlooking Lake Edward, to the vicinity of Lake George.

LAKE EDWARD

Lake Edward, originally named Albert Edward, is the southern of the two great western reservoirs of the Nile. It lies at an altitude of 3,000 ft. above sea level, or 2,000 ft. lower

than Lake Kivu. In shape it is roughly oval, with no deep indentations in its coast-line. It comprises an area of 830 square miles. Its greatest length, in a north-east and south-west direction, is 44 miles, and its greatest breadth 32 miles. In the dry season the lake is usually covered with a thick haze, so that it is impossible to see more than a few miles. When the rains set in the haze lifts and allows of fine long-distance views. The lake is subject to violent storms. The water can be drunk, though it is unpalatable, being slightly saline. The shores vary in character. On the western or Belgian side the lake is shut in by a lofty range of mountains, forming the western wall of the Rift valley, and following the shore line very closely. Consequently on this side there are few flats and little swamp. To the south the country is flat for miles and oppressively hot. The river Ruchuru, a fine full stream, enters the southern end of the lake through a large swamp, a breeding-ground for innumerable swarms of mosquitoes. To a point about midway up the eastern shore there is a wide stretch of lowlying plain between the lake and the hills. It is mostly rolling grass country, with scattered clumps of thorn bush. A great number of candelabra euphorbia trees are a noticeable feature. Along the rivers which cross the plain are very dense belts of forest, most difficult to traverse. The shore of the lake is bordered with swamp, which is especially wide round the mouths of the Ishasha and Berarara rivers. Between the Mchuera and Kaisi river (the latter marking the boundary between Kigezi and Ankole) the country is so densely covered with bush and long grass as to be almost impenetrable. To the east of this, and extending along the foot of the escarpment, is the Maramagambo Forest, covering an area of 30 square miles. The promontory of Kanyamwongo (or Kikuhuri), which projects for more than a mile south-westwards from the eastern shore of the lake, at the mouth of the Kaisi river, forms the only port in the district of Kigezi, the lake shore being elsewhere unapproachable.

North of this, in the district of Ankole, a high plateau borders

the lake, and approaches the shore in a series of bluffs, 300 to 350 ft. above the water. A thick belt of forest runs parallel with the lake at no great distance from it. In the north-east a fine bold bluff, wooded at its southern end, marks the mouth of the Kazinga Channel, which connects Lake Edward with Lake George, and forms the boundary between Ankole and Toro. Immediately beyond this is Katwe Bay, inserted in the north-east corner of the lake, the only well-marked bay in the whole lake shore, and containing three small wooded islands, the only islands in the lake. On the northern shore, which trends in a general north-west and south-east direction, is a high alluvial plain rising towards the lake in bold bluffs like those on the eastern shore, and separated from it by a wide belt of swamp. This plateau extends north to the southern slopes of Ruwenzori, and is bounded east and west by two hill ranges, spurs of the mountain. It is traversed by the river Nyamwamba (or Nyamgasha), which flows south from Ruwenzori. It is very deep, with a swift current, and almost perpendicular banks. The Semliki river, the only outlet of the lake, issues from its north-west corner in Belgian territory.

In the north-eastern area of Lake Edward, and on either side of the Kazinga Channel, are numerous crater lakes. South of the Kazinga Channel there are seven, which extend in a narrow belt for 15 miles, almost due north and south, lying along the foot of the escarpment, at an average distance of about 10 miles from Lake Edward. The largest of this series is Lake Niamsigiri.

On the north-west side of Katwe Bay is Katwe Salt Lake. It is separated from an arm of the bay by a knife-edged ridge, running east and west, not more than 150 ft. across, and falling down sheer to north and south. This lake, which is the crater of an extinct volcano, is almost circular in shape, and $1\frac{1}{4}$ miles in diameter. Its level is lower than that of Lake Edward, and the colour of its water is a pale rose. It is surrounded by high cliffs, and on the northern shore are a few date palms. The lake is the centre of a considerable salt trade. A circular

hollow containing another small salt lake lies three-quarters of a mile to the south-east, on the northern shore of Katwe Bay. It is surrounded with mud flats, and in the dry season becomes an expanse of crusted salt. It is not worked, as the salt is believed to be poisonous. The smell at Lake Katwe is very bad, but at the little lake it is horrible. This is, however, not due to the salt. At certain seasons there are fish in the small lake, though it is not known where they come from. The fish are killed by the chemical constituents of the water or possibly by the discharge of volcanic gases, and the dead fish rise to the surface.

THE KAZINGA CHANNEL AND LAKE GEORGE

As already stated the Rift valley is bifurcated to the north of Lake Edward by the Ruwenzori range, which differs from the Mfumbiro range in lying along the valley instead of across it. Of the two valleys thus formed, one diverges to the north-east and ends, as it were, in a blind alley beyond Lake George; the other or main branch continuing along the Semliki river, to the west of Ruwenzori, to unite with the northern section of the 'Rift' at Lake Albert.

The Kazinga Channel, for which the native name is Kafaru, is a natural waterway connecting Lake Edward with Lake George, running ENE. and SSW. in a winding course between high cliffs. It is 25 miles in length, and from $\frac{1}{4}$ to 1 mile broad, with a mean depth of about 16 ft. In the dry season there is no perceptible current. The water is of the brightest emerald green colour; it has an unpleasant taste, and is slightly brackish. The small Kiambura river, which rises in the highlands of western Ankole, enters the channel from the south about 8 miles from Lake George. The valley floor, on the south side of the strait, extends to the Kichwamba escarpment, a flat expanse, broken only by a few ridges running north and south. There is a good deal of forest along the channel with swamp in places. On the north side is a country of long grass and thick bush with no cultivation, bounded by a range of hills, a spur from Ruwenzori. Along the base of

these hills a terrace runs, and this again throws out a succession of spurs running east and west into the valley. The terrace rises about 500 ft. above the valley, and on it as well as in the hills adjoining are several extinct craters. Many of them contain small salt lakes, others are dry, and sometimes full of trees. In places they are found in pairs, separated by a narrow wall of rock, which forms a rim common to both. The largest and most northerly of these crater lakes is Lake Kikarongo (Chukarongo), situated to the east of Lake George, where the curve eastwards towards the Kazinga Straits begins. It is nearly circular in shape and half a mile in diameter. The water is brackish and undrinkable.

Lake George or Dueru, the northern portion of which is locally known as Ruisamba, lies at an altitude of 3,015 ft., and comprises an area of 114 square miles, lying chiefly in the district of Toro. It is about 11 miles from north to south, and a little less from east to west. Like Lake Edward, of which it is an extension, it is often wrapped in fog during the dry season. The southern shore is indented by remnants of old craters, forming a series of beautiful curved bays. The mouth of the Kazinga Channel is at the south-western corner, and just to the north of it is a large island. On the western shore are wide papyrus swamps, but the eastern shore is swamp-free, and the wall of the escarpment rises directly above it. In the north-west corner a long and deeply indented inlet runs back some 6 miles westwards, leaving only a narrow strip between the lake and the foothills of Ruwenzori. To the north-east a long arm of swamp, gradually narrowing, stretches north for about 17 miles. It is overgrown with dense jungle, full of elephants and buffaloes, and traversed by the Rwimi and Mpanga rivers, which like all the rivers entering the lake, except a few small streams to the south, rise on the eastern face of Ruwenzori. The Mpanga makes an immense eastward bend through Toro, and enters the north-eastern corner of Lake George, coming down through a remarkable forest-clad gorge, 700 ft. deep. It carries down a larger volume of water than any other stream entering Lake Edward. To the

north-east, about 18 miles from the lake shore, rises Mount Kabuga or Edwin Arnold, also known as Lobara, a mighty upstanding mass, 5,959 ft. in height. It is covered with grass from base to crest, and there are trees on the summit. All round it is short grass country. The Mpanga passes to the east of this mountain, and then turning south-west enters the gorge mentioned above.

TORO

As already stated the Kazinga Channel is the southern boundary of the Toro district. Toro includes the Ruwenzori range and that part of the Semliki valley which lies within Uganda. The land rises towards the north, from the low-lying plains of the Lake George valley to the high plateau at the north-east end of Ruwenzori. There is also a gradual slope down from west to east towards Buganda. The line of the watershed between the Rift valley and Lake Victoria runs ENE. from the plateau east of Lake George to Mubendi. Owing to its proximity to Ruwenzori, Toro is well-watered and the soil is rich. The climate is cool for most of the year. In the early morning the wind seems to blow always from the west, very keen and cold, and often bringing thick mist. December, January, and February are quite fine, and the same may be said of June, July, and August. In April and May there are light rains. In the remaining months the rains are very heavy and the thunderstorms of great violence. The numerous craters and crater lakes in western Toro show that the country has been subjected to considerable volcanic action. Earthquake shocks are frequent.

Toro may be divided into parallel zones, running lengthwise down it. Along the border of Buganda the country consists of a succession of low hills and swamps. This, however, does not extend very far into Toro. The greater part of eastern and central Toro consists of rolling plains of short grass, with enormous grass-covered hills of very fine outline, affording excellent pasture. This is bounded on the west by a belt of very dense tropical forest which runs northward from Lake

George parallel to Ruwenzori at a distance of about 20 miles. West of this forest belt and until quite close to the foothills of the range there is dense elephant grass, after which there is again short grass. The immense wall of Ruwenzori, deeply furrowed with ravines, bounds the plain of Toro on the west.

To the west of the swampy northern arm of Lake George an open plain stretches to the foothills of Ruwenzori. It is traversed by numerous streams, which issue from the gorges of the mountains, and, turning south, enter Lake George on its northern shore. In the dry season the majority of these rivers present no special difficulty, but in the rains they are formidable obstacles. The scenery is very grand and wild, especially in the valleys of the Mubuku and Hima rivers. Beyond the latter river a lofty spur runs out into the plain and comes down almost to the edge of the swamps at the north end of Lake George. It is thickly forested and rises about 500 ft. above the plain. The next river, north of the Hima, is the Rwimi (Wimi). It flows in a deep valley, with almost vertical sides, which are densely wooded, and is extremely difficult to cross. There are hot springs, which flow into the Rwimi on its left bank at the point where it issues from the hills. Similar hot springs occur exactly opposite on the western side of Ruwenzori. Just before it makes its last turn towards the south, the Rwimi enters a deep winding gorge filled with trees, and descends to Lake George in a series of falls.

To the north of Lake George a number of forested ridges run up northwards gradually increasing in height until the eastern loop of the Rift valley comes to an end in a high expanse of tableland.

On the plain to the north of the Rwimi, and about 2 miles east of the road to Fort Portal, there rises the solitary conical hill of Kyatwa. A lake lies beneath it, and a chain of small crater lakes stretches to the north-east. There are 60 or 70 of these craters, varying in diameter from half a mile to 50 yds. Some have water at the bottom of them, others are dry.

From here to Fort Portal there is considerable cultivation and banana plantations are numerous. The land mounts steadily northwards, until to the north of the Mahoma river the plain is more than 5,000 ft. above sea-level. As Fort Portal is approached the valleys running out from Ruwenzori become wider and the slopes flatter.

Fort Portal is situated on three or four hills on the north bank of the Mpanga, at an altitude of 5,026 ft. It stands high and is well drained. The country all round is open and free from bush. The soil is rich and well-watered and the population considerable.

The Mpanga, the principal river of Toro, rises on Ruwenzori, about a third of the way down from its northern end, and flows at first in an easterly direction. Its course is extraordinarily winding. From certain heights it can be seen east, west, north and south, so that it is difficult to believe that it is the same river. Four miles below Fort Portal it turns south and 6 miles farther on enters the Kibale or Muhombo Forest, one of the largest forests of Uganda, with an area of 230 square miles. The Mpanga, after a wide sweep to the east, finally enters Lake George, flowing south-west. Throughout its southern course it flows through tropical forest, between the hills which terminate southwards in Mount Kabuga (see above) to the west, and a high plateau to the east, which forms the watershed between Lake Edward and the Victoria Nyanza.

Fort Portal is distant about 7 miles from the foothills of Ruwenzori. From the station Ruwenzori appears as a long ridge, bounding the western and south-western horizons. The fine serrated heights of the Portal Peaks lie to the south-west. They have an altitude of about 14,000 ft., and, though a part of Ruwenzori, have the appearance of a distinct range. On clear days the peaks of Mount Baker and Margherita are visible 60 miles away to the south-west. About 5 miles to the north-west of Fort Portal is a very beautiful lake called Kijongo. It is over a mile long, and about 800 yds. wide. On the eastern side are a number of conical-shaped hills,

covered with bright green grass, each one looking as if the top had been knocked off. They are extinct volcanoes, containing crater lakes. The water in these lakes is warm, and clear blue in colour. On the sides of the craters are trees and all kinds of tropical vegetation. North of Lake Kijongo the land rises to the edge of the escarpment, which here runs north-east and south-west.

The country north and east of Fort Portal is known as Mwenge. It is open and very undulating, covered for the most part with elephant grass, which continues nearly all the way to Fort Portal. There are innumerable papyrus swamps and occasional outcrops of rock. As the escarpment is approached there is a steady slope upwards to the edge, which in places is very sharp, the path seeming to disappear at one's feet. Fine forest borders the escarpment and runs back from it for a considerable distance. North-east of Fort Portal the ground falls steadily to the valley of the Muzizi, 26 miles away. The Muzizi river rises in the neighbourhood of Mubendi and flows in a general westerly direction through a deep wide valley, which scores the country like a gigantic trench, forming the northern boundary of Toro. In the rains it is a raging torrent, and even in the dry season it is unfordable in many places. The Muzizi descends over the escarpment in a series of falls, some of which are of great height, and turning northwards enters the south-eastern corner of Lake Albert. Across the Muzizi is a part of Buganda, known as Bugaya (see above), which extends westward to the shore of Lake Albert. Only about 12 miles separates the mouth of Muzizi from that of the Ngusi river to the north, which constitutes the northern boundary separating Bugaya from Bunyoro. Where the road from Fort Portal to Hoima crosses it in a north-easterly direction, parallel to the escarpment, Bugaya is about 22 miles in width.

The cliffs which bound the valley of the Muzizi, on its northern or Buganda side, rise precipitously in two steps, through thick forest, to a high tableland, very wild and desolate, with an altitude of about 4,000 ft. It is covered

with scrub and elephant grass, and intersected by deep valleys; in each of which are swamps. At intervals rugged hills rise from it, with great outcrops of rock on their slopes. There are few inhabitants, and in the dry season water is scarce. As Bunyoro is approached the country becomes less wild, and there is a certain amount of cultivation. After a long succession of steep rises and dips there is a rapid descent to the Ngusi river.

RUWENZORI

The Ruwenzori range runs NNE. and SSW. for about 70 miles, between Lake Edward to the south, and Lake Albert to the north, with a greatest breadth of 30 miles. The range narrows towards the north, and the northern part consists of a single ridge, up one side and down the other. At its southern end it subsides gradually in many broken foothills, but elsewhere it rises with astonishing suddenness. This is especially marked on the west, where the mountains fall down very steeply into the Semliki valley in numerous craggy precipices and forest-clad slopes. To the east, on the Toro side, the slope is longer and more gradual. The views of the range from the west are finer than those from the east.

The situation of Ruwenzori as bifurcating the Rift valley has already been explained. Whereas most of the continents slope gradually from the summits of their mountains down to their high central plateaux, and thence to the coast level, Ruwenzori rises from the depression of the Rift valley, which encircles it on all sides except the north-east. Consequently, although Ruwenzori is the most considerable group of snow mountains in Equatorial Africa, situated in the middle of the continent, and running in the direction of its main axis, it does not form a portion of the central watershed. The actual Congo-Nile divide is a line of low hills lying to the west of the Semliki. The whole drainage of Ruwenzori falls eventually into Lake Albert. The streams on the east discharge their waters into Lake George, and thence pass

into Lake Edward, the only outlet of which, the Semliki river, enters Lake Albert. Thus the range sheds the waters of all its slopes, east, west, north, and south, into one and the same river system, that of the three lakes and the Semliki, which together form the western sources of the Nile.

Unlike the other great mountains of Equatorial Africa, Ruwenzori is not volcanic, though great volcanic activity has taken place all round it. For the greater part of the year Ruwenzori is covered with a pall of fog and cloud which very seldom lifts, due to the vapours exhaled from the Congo Forest, drawn up by the sun, and condensed round the frozen peaks. This accounts for the late discovery of the mountains. In 1875 Stanley spent several weeks in their close neighbourhood without catching a glimpse of their snowy summits. In July and August, and again in December and January, Ruwenzori is completely hidden, though these months, being dry, are the best for climbing the mountains. In October and November, and in April and May, the clouds lift, and there are fine views of the range.

The snow peaks, which form such a striking feature in this latitude, less than half a degree north of the equator, are comprised in an area of 55 square miles in the centre of the range. They form six groups, which are separated by snowless cols, five in number and all at an altitude of about 14,000 ft. Of these groups the two most northerly run parallel with one another, Mount Gessi to the east, and Mount Emin to the west, each with two peaks, the highest altitudes being respectively 15,647 and 15,797 ft. Mount Emin joins Mount Speke which lies SSE. This group also has two peaks, the highest being 16,080 ft. West of Mount Speke is the loftiest group of all, Mount Stanley, which has five peaks, the two highest being Margherita (16,815 ft.) and Alexandra (16,749 ft.), the former being on the Uganda-Congo boundary. South-east of Mount Stanley, and almost due south of Mount Speke, is the group bearing the name of Mount Baker, formerly called Kiyanja, having four peaks, the highest of which, known as Edward is 15,988 ft. South of this is Mount Luigi di Savoia,

consisting of three peaks, the loftiest being 15,299 ft. in altitude.

The glaciers of Ruwenzori are of comparatively small extent. The area covered by them is 7 miles long from north to south, and about 4 miles wide from east to west. As a rule they do not descend below the permanent snowline, which is about 14,700 ft. The small Mubuku glacier, however, comes as low as 13,800 ft. The largest glaciers are those on the Stanley, Speke, and Baker groups, and the eastern side of Gessi. The glacier to the east of Mount Stanley is especially fine. The nose of this glacier presents a sheer wall of ice, 50 or 60 ft. in height.

As a snow range Ruwenzori cannot be compared with the Himalayas or even the Alps ; but there is nothing elsewhere like the strange fantastic aspect of its inner glens, with their dark smooth walls, and almost incredibly grotesque vegetation. The snow peaks, again, are remarkable for their vast snow-cornices, unique in size and in being supported by regular colonnades of icicles, which give the summit-ridges an appearance unlike that of any other snow mountains in the world.

The most important valley on the east or Toro side of Ruwenzori is that known as Mubuku. Actually the Mubuku river is a mere affluent of the much larger Bujuku, so that it would be more correct to call the valley, from the point where these two streams join, downwards, by the latter name. However the name Mubuku, as applied to the lower valley and its tributaries, is now firmly established. The valley containing the Bujuku river runs up WNW. from its junction with that of the Mubuku just above Nakitawa. It is surrounded by the three great mountain groups of Speke, Stanley, and Baker. Branch valleys run up north to Mount Gessi, and north-west to Mount Emin. Lake Bujuku, one of the numerous small lakes on the range, lies close beneath Mount Stanley to the west, at an altitude of 12,833 ft. ; above it is the lowest of the five passes mentioned above, the Stuhlman Pass, between Mounts Stanley and Speke. The route by the Mubuku valley is that generally taken by

expeditions ; this, though the easiest approach to the highest parts of the range, often entails very difficult going, being an alternation of morasses, brimming over under incessant cloud bursts, precipitous mud slides, and rotten barricades of fallen trees. Chilly blasts drive thick mists up the deep trench of the valley, blotting out everything fifty yards off. The head of the valley is hemmed in with black cliffs. The great glaciers of Mount Baker are visible on the sky-line, spreading out broadly on the top of the cliffs to the left, but on the right letting fall a long tongue (the Mubuku glacier), down a cleft, to within 500 ft. of the valley floor.

On the west or Belgian side of the range the principal valley is that of the Butagu, a tributary of the Semliki, which is fed by the western glaciers of Mounts Luigi di Savoia, Baker, and Stanley.

On the south side the valley of the Nyamwamba runs up to the glaciers of Luigi di Savoia.

The southern prolongation of Ruwenzori shows a tendency to drought, and the vegetation is comparatively poor, but elsewhere on the range the rainfall is tremendous, probably at least 100 inches. As a consequence of this the vegetation is luxuriant and excessive, the mountains being covered with thick forest and elephant grass. On the other hand the forest in the Semliki valley consists of an unending monotony of tall, straight trees, not very large in girth, and the undergrowth very rarely dense. The height at which the forest begins varies in different parts of the range. In places it begins as low as 5,000 ft. Above this at altitudes ranging from 7,000 to 8,000 ft. is a huge belt of bamboos, terminating usually at about 10,000 ft., in thick morass and swamp, fed by streams and waterfalls from the higher peaks. Tree-heaths are found up to 12,500 ft., and forests of giant lobelias and groundsels up to 14,000 ft., beyond which is the region of bare rock and snow. Below Mounts Emin and Gessi to the north is a wide area of totally unexplored country, covered with the densest forest.

The limit of native settlement and cultivation is about 6,700 ft.

THE SEMLIKI VALLEY

The Semliki or Etuli river flows out of the north end of Lake Edward in Belgian territory along a broad shallow valley. At the south end this valley is open, with the usual spear grass and thorn trees. Going northwards this is replaced by the densest elephant grass, covering both the lowlands and the slopes of Ruwenzori. The elephant grass in turn gives place to forest.

The total length of the Semliki river is 155 miles. For the last 50 miles, from its confluence with the Lami river, which descends from the glaciers of Margherita, to its entrance into Lake Albert, it forms the boundary between Uganda and Belgian Congo, the rest of its course being in Belgian territory.

As seen from the western slopes of Ruwenzori the Semliki winds like a silver snake through the valley. After leaving Lake Edward it flows in a northerly direction for about 20 miles, then north-west for 16 miles, after which it bends round to the north-east. About 7 miles below this bend, a little beyond the Belgian station of Beni, the Semliki enters the eastern extremity of the great Congo Forest, known here as the Ituri Forest. During the wet season an excessive amount of rain falls in this valley. Mist rises from the mass of trees, and forms an impenetrable bank of cloud. From the upper parts of the mountain it would frequently be impossible for days together to form any conception of what country lay to the west. The Semliki continues through the forest to within 20 miles of the southern end of Lake Albert, when the forest gives place to open level grass country, dotted with palms and candelabra euphorbia trees. The river flows through this plain in many twists and turns, with banks as clean cut as those of a canal. There is a large swamp at the point where the Semliki flows close to the foot of the western escarpment. Finally it passes through another large area of swamp, chiefly ambach and papyrus, into Lake Albert.

In its course of 155 miles the Semliki falls 963 ft., from 3,000 ft., the height of Lake Edward, to 2,037 ft., the level of

Lake Albert. There are innumerable sandbanks in the river, and it is comparatively shallow, not more on an average than 6 ft. in depth. Elephants walk across it at certain seasons. On the other hand it is throughout its course a fine broad stream, 60 to 100 yds. in width. At the point where the ferry crosses it, on the road from Fort Portal to Mboga, 5 miles below the forest, it is 70 yds. across, and very swift. The rapidity of its flow prevents sudd from accumulating, and the cataracts, with one exception, occur above the forest. The cataract in the forest has a fall of from 8 to 10 ft., but it could be negotiated, and it would not hinder the use of the river as a waterway for floating down heavy timber and rubber from the forest area.

The valley of the Semliki, as already stated, forms the main trunk of the western Rift. To the east are the towering heights of Ruwenzori. To the west the elevation of the plateau falls, but the forest-covered escarpment presents a very steep slope.

About $4\frac{1}{2}$ miles almost due south of the point where the Semliki emerges from the forest, are some hot springs, which the natives use for medicinal purposes. They are situated on the western side of Ruwenzori, not far from its northern end. As the springs are approached a feathery cloud is seen rising from the forest. There is a distinct rise in the temperature, and a nasty sickly odour is noticeable. The vegetation rapidly becomes ultra-tropical. The springs themselves are in a wide open space. They consist of numerous bubbling springs of boiling water, some of which throw up a jet about a foot in height. A cloud of odoriferous steam covers them. All the water passes into a large stream which flows away into the forest to join the Semliki.

The flat Semliki plain to the south of Lake Albert is from 20 to 25 miles in breadth. It is bounded on the eastern side by a fine bold escarpment, which separates itself from the northern end of Ruwenzori, and runs in a north-east and south-west direction, rising 3,000 ft. above the floor of the Rift valley. From the edge of the escarpment, 8 miles north

of Fort Portal, and 5,096 ft. in altitude, there is a magnificent view of the northern spurs of Ruwenzori, and the wide valley below, with Lake Albert in the distance. Viewed from here the western wall of the valley appears like a range of distant mountains, but it is really a steep escarpment, with the level country of Mboga and Balegga at its summit. The first portion of the descent into the valley is a very steep drop of about 1,450 ft. Below this is a fairly level plateau, covered with high grass and thickly forested in places, forming the lowest spur of Ruwenzori. It is intersected by deep ravines, and crossed by several streams, which rise at the northern end of the mountain. Of these the most important is the Wasa which flows north-east into Lake Albert. The Nyabogo, another of these streams, flows north-west towards the Semliki in a deep wide valley, full of dense forest. A long gradual descent leads across this plateau to the last drop of 800 ft. on to the floor of the Rift valley.

LAKE ALBERT

Lake Albert is nearly 1,000 ft. lower than Lake Edward. It lies at an altitude of 2,037 ft. above sea-level, and comprises an area of 2,034 square miles. Its length is 95 miles in a north-east and south-west direction, and its greatest breadth is 23 miles. At its southern end there is a considerable amount of sudd, and for some miles northwards the depth is not more than 3 ft. The deepest soundings give from 50 to 55 ft., the average depth being 30 to 40 ft. The very shallow northern end is silting up. There are no islands in the lake. The water swarms with fish of which there are twenty-three different kinds.

Lake Albert is subject, more than any other African lake, to the most violent storms, which arise without warning. The lake, with its lofty escarpments, and the valley of the Bahr el Jebel to the north form a funnel. The clouds travel over the lake from the north at express speed, and hit the northern end of Ruwenzori. There is often a strong wind off the land, especially in the early morning, which makes

landing very difficult. On the western side of the lake, in Belgian territory, is the harbour of Kasenyji, the port of disembarkation for the Kilo goldfields. There is also anchorage at Mahagi. The best harbour on the lake is Butiaba on the eastern side in Uganda. It has deep water, and is well protected. In the centre of the lake the water is quite fresh, but near the shore it is brackish.

The Uganda-Congo boundary runs up the centre of the lake from the mouth of the Semliki to that of the Victoria Nile, so that the eastern and larger half belongs to Uganda. The lake is bordered on either side by magnificent escarpments, the walls of the Rift valley, the western being the finer and higher of the two. After leaving the Ituri Forest the western wall increases continually in height above the Semliki valley, and eventually towers some 5,000 ft. over Lake Albert, with an altitude, at its edge, of 7,200 ft. above sea-level. In its northern half it is known as the Mahagi escarpment. The eastern wall towards the south end of the lake rivals its neighbour in height and boldness of outline, but gradually decreases northwards as the Victoria Nile is approached.

The western or Belgian side of the lake is free from sleeping-sickness. At the southern end there is a plain about 5 miles wide between the escarpment and the shore. This extends for 20 miles up the lake. Then for 36 miles the escarpment falls directly into the water, with no level ground at the foot, except where small alluvial flats, at the mouth of the more powerful streams, afford the natives spots for settlement and cultivation along an otherwise forbidding and inhospitable shore. The average slope of the scarp is 14° , with a maximum of 18° . For the last 500 ft. to the lake level it is almost precipitous. The scarp is eroded by a number of V-shaped valleys, and here and there cascades of clear cold water leap out from these hanging valleys hundreds of feet above the lake. The cascades are clearly visible across the water from the eastern side. Towards the northern end of the lake the escarpment recedes from the shore, and runs in a more northerly direction, leaving a belt of lower country between

its foot and the water. North of Mahagi, Emin Pasha's old station, the escarpment again comes close to the lake, and forms a grand headland, behind which is Tungaru, opposite the exit of the Victoria Nile.

On the eastern side, at the southern end, the escarpment rises in a series of precipitous cliffs, over 1,600 ft. in height, from the water's edge, and broken at intervals by deep gorges. Through one of these gorges the Ngusi, the third most important feeder of the lake, descends in a fine fall. About 7 miles north of the Ngusi, a narrow strip of flat runs for a few miles between the escarpment and the lake, when the cliffs again close in upon the water for another 10 miles. At this point the escarpment recedes from the shore, leaving a plain 5 miles in breadth at its widest. This plain extends northwards for about 20 miles, after which the escarpment once more rises almost out of the lake, with just a strip of shore here and there. On one of these strips are situated the village and salt works of Kibero. Numerous small streams descending from the escarpment are bringing down large quantities of alluvial deposit and the flats round Kibero are continually encroaching on the lake. The soil is strongly impregnated with salt. In a deep ravine near Kibero, close to the path which leads down from Hoima, and only a few hundred yards from the lake, are hot springs and jets of steam. The floor of the ravine and the stones which cover it are hot. All round can be heard the bubbling and hissing of water. To the north of Kibero the escarpment deflects to the east and the flats widen until the Victoria Nile is reached. Eleven miles north of Kibero is the harbour of Butiaba, which is the port of exit for travellers passing from Uganda to the Belgian Congo, or proceeding down the Nile to Gondokoro and Khartoum. The harbour, which opens to the north, is protected on the west side by a long narrow spit of land running northwards, and curving round in a crescent shape. A few palms mark the extremity. Butiaba is hot, lowlying, and mosquito-ridden. A little to the south of it the Waki river descends from the escarpment in a beautiful double fall;

430 ft. in height. The flats to the east of Butiaba slope up in a succession of terraces to the foot of the escarpment, which at this point is very steep, and rises directly from the plain for some 600 feet. The ravines are deep, and in some places form great chasms. It is a march of 7 miles from Butiabwa to the top of the escarpment, where the high road to Masindi, 50 miles away, begins. North of Butiaba the lake contracts, and the flats widen, the lake shore trending almost due north, and the escarpment running north-east, and steadily decreasing in height to the Murchison Falls, where the Victoria Nile drops 400 ft. into the Rift valley. The triangular lowlying plain thus formed, between the lake, the escarpment, and the Nile, is covered with dense bush. Of the streams which cross it the most important is the Waiga, which in the rainy season is almost a mile wide with frequent deep holes. The Nile enters Lake Albert, 92 miles from its southern end, through a wilderness of ambach and papyrus, the delta extending some 4 miles. There are many side streams, and the current is sluggish. The lake at this point is about 4 miles across. Immediately opposite the delta is Dei Creek, where the Uganda-Congo boundary strikes the western shore. For 5 or 6 miles north of the entrance of the Nile the appearance of the lake gives no hint that a great river has joined it. Then the east and west shores approach, and a current is perceptible to where the Bahr el Jebel has its outflow.

BUNYORO

The greater part of that portion of Lake Albert which belongs to Uganda lies in the district of Bunyoro, the southernmost district of the Northern Province. Bunyoro has well-defined boundaries, Lake Albert to the north-west, the Ngusi river to the south-west, the Kafu river to the south and south-east, and the Victoria Nile, from Port Masindi, on the east and north.

North of the Ngusi river, the Bugoma Forest occupies most of the country. It is crescent-shaped, with much cultivation

within the crescent. The area of the forest covered by large timber is not great, but the wood straggles in all directions, with open glades and patches of thorn-scrub. Between this forest and the edge of the escarpment, overlooking Lake Albert, is a long strip of very undulating thorn-covered country. There are many small streams, the majority of which are permanent. In the middle of Bunyoro, between Masindi and the escarpment, is another important forest, that of Budongo, covering an area of 160 square miles. It is a crescent-shaped belt, 2 miles deep, with its ends towards the escarpment. The mahogany of this forest, and a species of very tall straight tree known as nsambya, much used for building, are reckoned the most valuable timber in Uganda. Thus Bunyoro contains two out of the five most important forests of the Protectorate.

The greater part of the plateau of Bunyoro consists of a stretch of cone-shaped hills, occasionally relieved by a saddle-back. This hilly condition has a deteriorating effect on the water supply. The rains begin in March, and continue till the end of May. Then follows three months' dry season. The water accumulates at the base of the hills, and is thwarted in its efforts to form channels by the rapid-growing vegetation. Being thus checked, the water expands, and, with alluvial deposits washed down, settles into stagnant swamps. It is not till the rivers flow over the escarpment that they show clear running water. Bunyoro, in this respect, presents very much the same type of scenery as Buganda, but its hills are wilder and more rugged, the summits being often marked with boulders of granite and peaks of rock, and having generally a more sharply defined outline than the rounded undulating ridges of Buganda. There is also much less elephant grass.

The altitude of Bunyoro is from 3,200 to 3,800 ft. above sea level, the hills rising to from 4,000 to 4,800 ft. A central ridge, forming a water-parting between the streams which descend the escarpment and those which are tributaries of the Kafu, runs in an approximately north-east and south-west direction,

parallel to the escarpment, between Hoima and the Budongo Forest. At the south-west end, immediately north of Hoima, the ridge rises very abruptly. It is known here as Palajoki, and has an altitude of 4,876 ft., the highest point in Bunyoro. Palajoki is a fine hill, visible for miles, and covered with short grass. Towards the north-east the ridge steadily diminishes in height. Two prominent isolated hills deserve separate mention, Fumbia and Musaja Mukuru. The former is 10 miles south-west of Masindi, on the right of the road going to Hoima. It has an altitude of 4,700 ft., and forms a noticeable landmark. Masaja Mukuru, or the Old Man, rises almost perpendicularly 400 ft. from the plains, 5 miles to the south of Hoima, and not far from the northern bank of the Kafu. This hill, which has an altitude of 4,528 ft., is an old stronghold. The summit is flat and scrub-covered, with numerous anthills. On a very clear day Lake Victoria is visible from here.

Hoima was the head-quarters of Bunyoro from 1900 to 1912. It is situated at an altitude of 3,664 feet. The place is surrounded by hills, which keep off the breeze, and the climate is hot and damp. There is an excellent water supply. Kibero, the nearest point on Lake Albert, is about 18 miles to the north-west. There is a considerable amount of cultivation round Hoima, chiefly millet. Banana plantations are not so prominent a feature in Bunyoro as elsewhere.

Masindi, the present capital, is 35 miles from Hoima to the north-east and is situated in open country, in a shallow basin covered with short rough grass. It is connected by motor road with Butiaba on Lake Albert, about 30 miles WSW., and also with Port Masindi, on the Victoria Nile, 28 miles to the east. There is a prominent hill, immediately behind Masindi to the north, known as Kigulya, 4,508 ft. in height. In the country between Masindi and Port Masindi there are a good number of permanent wells and springs, but they are not always easy to find. Southwards towards the Kafu is a plain covered with thick bush, very swampy in the rains. North and north-east of Masindi towards Fajao and Foweira, as far

as the Victoria Nile, the country consists of rolling plains with vast stretches of very long grass. There is much thorn-scrub, and here and there isolated hills.

PART II

NORTHERN REGION

Bahr el Jebel and West Nile District—Country between Bahr el Jebel and Eastern Rift Valley, Assua River—Gulu, Chua, Lobar, and Karamoja—Eastern Rift Valley and Turkana Country—Lake Rudolf.

THE BAHR EL JEBEL AND THE WEST NILE DISTRICT

THE Nile in its second section, that is from Lake Albert to Lake No in the Sudan, is known as the Bahr el Jebel or Mountain River. For 130 miles, the distance from Lake Albert to the Sudan frontier at Nimule, it flows through Uganda territory, in a general northerly direction. On the right bank is the district of Gulu, on the left the West Nile district. Throughout this stretch the Bahr el Jebel is a navigable waterway. Nimule, which is just across the frontier, marks the limit of navigation. A railway is badly needed to provide communication along the unnavigable portion from Nimule to Gondokoro, whence steamers run to Khartoum.

A constant succession of rivers and small streams flow into the Bahr el Jebel almost every quarter of a mile. They are nothing in the dry season, but in the rains they are formidable obstacles. In its course of 130 miles through Uganda, the Bahr el Jebel falls little more than 200 ft., from 2,037 ft., the level of Lake Albert, to about 1,830 ft. at Nimule.

In Lake Albert the Nile collects the waters of its western sources on Ruwenzori and the Mfumbiro mountains. The Victoria Nile enters the lake flowing west, the Bahr el Jebel leaves it flowing north-east. The exact point where the lake ends and the river begins is not easy to determine. Distances are usually reckoned from the mouth of the Victoria Nile, and the river is considered to be continuous from here, though the lake formation continues some 9 miles northwards. About

5 miles north of the delta of the Victoria Nile a current is distinctly perceptible, and the two shores are not more than a thousand yards apart. Four miles farther on the river has fairly begun.

The Bahr el Jebel flows first north-east. The left bank is covered with light forest, the right is open and cultivated. On either side is a belt of ambach and papyrus. About 20 miles from Lake Albert it bends north-west. At the bend there are cliffs on the right bank, rising 300 ft. above the water, but the left bank is low and flat. As a general rule, wherever there is high land on the one side, on the other there are flats and generally swamps. It is quite exceptional to find high land on both banks. Eight miles lower down the Bahr el Jebel is joined, on the right bank, by the Achwa river, which enters through a wide extent of papyrus swamp. Below this the river widens out into a large lagoon, known as Lake Rubi. The length of this 'broad', in a north and south direction, is about 4 miles, with a greatest breadth of 3 miles. On either side of the main channel reedy swamps extend for a long way. Lake Rubi is the first of a succession of such broads. They continue, one after the other, to a few miles above Dufile. Comparatively narrow reaches connect them, often mere gates, through which the river passes from one broad to another. The belt of papyrus swamp on either side is practically continuous, and the banks are seldom visible. Sometimes the swamp is a narrow fringe and sometimes of great breadth and extent, especially round the mouths of the tributary rivers. The banks, in consequence, are difficult of access, but the recognized landing-places and native ferries have, as a rule, well-known approaches. The water in Lake Rubi is shallow, and the passage through it intricate. In 1916 low water put a stop to the steamer service, and necessitated the use of open boats to Nimule. Below Lake Rubi, opposite Wadelai, which is on the right bank, the river is suddenly contracted to about 200 yds., the narrowest point between Lake Albert and Nimule, and the current increases in speed and depth. Just where it begins to contract, the river Umi comes in from the

north-east. This and other rivers entering on the right bank will be described more fully in treating of the Gulu district. North of Wadelai the country on the right bank becomes undulating, with here and there a prominent height. For about 15 miles downstream the right bank can be approached almost anywhere, but for the next 39 miles the breadth of the papyrus swamps renders landing very difficult. The narrow reach below Lake Rubi continues for about 3 miles, when the river begins to widen out, and flows in a long double curve, first to the north-west and then to the north-east. Near this latter bend, two streams join the Bahr el Jebel on the left bank, first the Alla and then the Atchu. Fifteen miles from Wadelai the river enters a broad lagoon, full of large reedy islands and much papyrus. The channel winds through these islands, the open waterway being sometimes scarcely more than 30 yds. in breadth. Downstream the islands increase in number, until there is a perfect maze of channels wandering between high reeds. About 20 miles from its confluence with the Atchu, the Bahr el Jebel receives the waters of the Anau or Atula river, which enters on the left bank through a large swamp, known as Balala Swamp. A little below this the small river Zokar comes in on the right bank. Three miles farther on the Bahr el Jebel is a vast expanse of water-weeds and papyrus, nearly 4 miles across, with an open channel varying in breadth from 45 to 200 yds. This is succeeded by a reach with comparatively little swamp, and the river is here a grand stream, flowing in long sweeping curves, in a well-defined channel, with a breadth of 540 to 650 yds. The eastward bend towards Dufile, the old Belgian station, is very gradual, the river at the turn being about 3 miles broad, with extensive swamps on either side. Two miles above Dufile it contracts from a breadth of 3 or 4 miles, with an open waterway of 700 yds., to about 270 yds., and flows a little north of due east, with a strong current, and a depth of about 13 ft. Opposite Dufile the river Aiyuge comes in from the south on the right bank. The ambach on either side of the river here is exceptionally tall, and resembles a line of poplar trees. Four

miles from Dufile the Bahr el Jebel makes a sharp elbow-bend to the north-west. Just below the bend it receives on the right bank the Umyama river, which forms for 10 miles from its mouth the frontier between Uganda and the Sudan. Nimule is situated on the northern bank of the Umyama at its junction with the Bahr el Jebel.

The valley of the Bahr el Jebel is a continuation of the Western or Albertine Rift valley, at the bottom of which the river flows. The eastern escarpment ceases to be a prominent feature north of the Murchison Falls, but is none the less clearly marked. The country to the east generally rises from the Bahr el Jebel in two terraces. The first is about 3 or 4 miles in breadth. Above it the second plateau, which is much higher, rises abruptly. From the river this second plateau, which represents the eastern wall of the Rift valley, looks like a low range of hills. Some 30 miles north of Wadelai the escarpment bends away to the north-east, leaving a wide plain between it and the Bahr el Jebel. The plain is grass-covered, swampy in places, and abounds in game. The river encircles it to the west and north, while to the south-east is the long line of the escarpment, which diminishes steadily in height towards the north-east. North of Nimule, beyond the Uganda frontier, the eastern wall rises again in a range of stony hills called Arju, which runs parallel with the Nile as far as its junction with the Assua.

On the opposite side of the valley of the Bahr el Jebel, in the West Nile district, the western wall is throughout a conspicuous and prominent feature. North of Mahagi on Lake Albert there is a narrow strip of country, a mile or so broad, between the foot of the escarpment and the shore. At the summit of the escarpment, on either side of the Uganda-Congo frontier, there is fine country, consisting of a succession of hills, ridges, and valleys, very beautiful, well-watered, and with an excellent climate. Northwards, along the first reaches of the Bahr el Jebel, the escarpment bends away to the north-west. The plain thus formed between it and the river is known, to the south of the Ora river, which enters the Nile opposite

Wadelai, as the Panyangu Plain. Along the Ora it is 15 to 20 miles in breadth, flat and covered with thick bush, and does not rise many feet above the Bahr el Jebel which it borders. West of the plain there is a precipitous ascent to the Wangiri country, situated about the head-waters of the Ora, at an altitude of over 4,000 ft. North of the Ora the escarpment bends north-east, and then NNE., and the plain contracts. From a few miles below Wadelai to the point where the river turns eastward to Dufle, the valley is bounded on the west by a steep rise of 1,500 ft., from the 2,000 ft. of the Nile to the 3,500 ft. of the edge of the plateau above, but there is no well-defined escarpment. Between the foot of this rise and the river there is a strip of plain of an average breadth of 3 to 4 miles. At the summit of the western wall is a plateau sloping gently upwards to the Congo-Nile watershed, from 3,500 to 4,500 ft. above sea-level. The West Nile district was formerly the southern part of the Lado Enclave, and was incorporated in Uganda in 1914. Towards the south it is very narrow, as here the Congo-Nile watershed, which forms its western boundary, is not more than 30 miles from the Bahr el Jebel. Along the water-parting the highlands are open undulating country, entirely free from bush and with no large trees, fertile, and well watered by numerous streams. These latter are the head-waters of several fair-sized rivers, which traverse the West Nile district and are all tributaries of the Bahr el Jebel. Near the head-waters of the Anau, and situated on its right bank, is the government station of Arua. It is about 6 miles from the Congo frontier, and lies just north of lat. 3° N. Both the Alla and Atchu rivers rise in the neighbourhood. The plateau between the water-parting and the descent into the valley of the Bahr el Jebel is open rolling country, with here and there isolated groups of hills, some of the peaks of which rise to a height of about 6,000 ft. The most important are Mount Baker or Luku, which rises on the south bank of the Alla, about midway between the Congo frontier and the Bahr el Jebel, and Mount Wati on the right bank of the Anau, about 10 miles from the frontier.

Opposite the point where the Bahr el Jebel turns eastward, the western wall bends in the same direction, and runs east and west above the river for 30 miles in a precipitous escarpment, known as the Madi escarpment, from the tribe inhabiting its summit and its base. Behind this rises Jebel Otze (6,310 ft.) a striking looking mountain, with one principal and several secondary peaks. Just to the north of Dufile the escarpment turns abruptly NNW., following the course of the Nile. At the bend is Mount Elengua, a bold bluff, shaped like a pyramid with a rounded apex rising 1,300 feet above the river. Behind Dufile the land slopes sharply up to the base of this mountain, covered with low bush, a few palms standing out in places. These heights are the termination of a ridge of high land which runs north-east from the Congo-Nile watershed. They are sometimes called the Kuku mountains from the tribe inhabiting the country behind and adjacent to them, but this name is more properly applied to the escarpment north of the Uganda frontier. North of the elbow-bend of the Nile at Nimule the western wall is formed by a long mountain called Nyiri. It rises to a height of 5,000 ft. above the sea-level and 3,000 ft. above the Nile, to which it drops down in a succession of precipices. On the west it falls with equal steepness, but only 1,000 or 1,500 ft. to the general level of the highlands. At this point, on the eastern bank opposite, are the Arju mountains, already described as beginning north of Nimule, and continuing to the mouth of the Assua. They form a ridge, 800 to 1,000 ft. above the rivers. Here, therefore, the Bahr el Jebel flows in a gorge, and in this section occur the Fola Falls, and the majority of those rapids which make the stream unnavigable from Nimule to Rejaf. The boundary between the Sudan and the West Nile district of Uganda follows the foothills of the Nyiri mountain, at a distance of 2 miles from the river, as far as the deep ravine through which the Aiyu river descends to join the Bahr el Jebel. The section of the escarpment between the Aiyu and Kaia rivers, which rises 1,500 ft. above the Nile, may suitably be called the Kuku escarpment, from the tribe which inhabits its summit. The Kaia river enters the

Nile well beyond the Uganda frontier, but for the first 45 miles from its source on the Congo-Nile watershed, it forms the northern boundary of the West Nile district.

COUNTRY BETWEEN THE BAHR EL JEBEL AND THE EASTERN RIFT VALLEY : ASSUA RIVER

To the east of the Bahr el Jebel a rolling plain slopes up gradually eastwards, from 2,000 ft. to between 4,000 and 5,000 ft. above sea-level, until it reaches the edge of the escarpment of the eastern Rift valley. This plain is broken towards the north and east by mountains, hill ranges, and isolated heights, which rise straight out of the plain, and can be seen from long distances. From Wadelai on the Bahr el Jebel, the distance to the eastern Rift valley is about 230 miles, and from Nimule, where the Bahr el Jebel reaches its most easterly point, about 160 miles. This northern region is dry and arid compared with the southern part of the Protectorate. Wide swamps are rarer, clear streams and rivulets more frequent, but there are few permanent streams. West of long. 34° the country consists very largely of rolling downs covered with long grass, which the natives burn every year, so that at certain seasons there is no grass. To the east of this line there is short grass.

The principal river is the Assua (Aswa), by far the most important tributary which the Bahr el Jebel receives south of Gondokoro in the Sudan. The Assua drains most of the area contained within the three districts of Gulu, Chua, and Lobor. It is a permanent stream, red in colour, with a deep, wide bed, though running very low in the dry season. The slope is heavy, and the river is liable to sudden floods, when it becomes wide, deep, rapid, and quite impassable. At other times it presents no difficulty, and can be crossed with ease to within 20 miles of its mouth. It does not take the name of Assua, until its exit from Lake Kirkpatrick, some 200 miles south-east of its confluence with the Bahr el Jebel. The river entering the eastern end of this lake is known as the Lokichari. The sources of this stream are on Mount Maroto, and in the

hills round Magosi on the edge of the escarpment of the eastern Rift. It has a sandy bed, 40 to 60 yds. in width. The direction of its course is south-west, and it receives the drainage from the western edge of the Karamoja plateau. As a rule the Lokichari only flows in the rainy season. Just before entering Lake Kirkpatrick it is joined by the Chibak river, flowing due south from the Dodosi hills, which again has water in it only in the rains. Lake Kirkpatrick, which lies to the south of the Lobar mountains, is little else than a long narrow swamp, dry in the dry season. It has an area of 122 square miles. From this lake the Assua emerges, and flowing WNW. for about 40 miles, divides the districts of Teso and Lango to the south from that of Lobar to the north. After this it bends north-west, and maintains this direction for the rest of its course. The watershed between the Assua and the Victoria Nile is everywhere close to the former river, and the tributaries which it receives on this side are small and unimportant. Some of the eastern tributaries, on the other hand, have a considerable length, and the Assua on this side receives water from the Laroma and Dodosi hills, the Morongole mountains, and from the southern and western slopes of the Agoro mountains on the Sudan frontier. The Agaga, however, which rises on Mount Napono, is said to be the only tributary having running water in it all the year round, though the volume brought down during the rains must be very considerable. The Poger, another tributary, which passes through the middle of Chua district, has permanent water in its upper reaches, to the south and south-west of the Laroma hills, where it is known as the Zamuge or Kapeta. There is also permanent water in the Arenga river, which flows south into the Poger from the Agoro mountains. The Khor Atappi, which joins the Assua from the east, shortly before its confluence with the Bahr el Jebel, has the whole of its course beyond the Sudan frontier. The Assua crosses the frontier about 12 miles east of Nimule, and enters the Bahr el Jebel through a deep wooded gorge some 10 miles to the north of that place. At its mouth it is more than 100 yds. wide.

GULU, CHUA, LOBOR, AND KARAMOJO

Between the Bahr el Jebel and the river Assua is the district of Gulu. The line of the eastern escarpment through this district, from the Murchison Falls to Nimule, has already been described in connexion with the Bahr el Jebel. The country in the interior is undulating, with prominent outcrops of rock. A constant succession of ridges traverse it from east to west. These ridges are called 'mtwala' by the natives, who measure the distance from one place to another by the number of 'mtwalas' that have to be crossed. Gulu is on the whole well-watered by numerous streams, all of which, however, run very low, and many quite dry in the dry season. The southern boundary of the district is the Victoria Nile, from its confluence with the Tochi to Lake Albert. The Victoria Nile to the south, together with the Bahr el Jebel to the west and north, form a complete half-circle round Gulu. In the centre of this half-circle, some 50 miles SSE. of Nimule, there is a lofty mountainous tract of country, which rises very abruptly out of the plains, and forms a watershed, running north-west and south-east for 20 miles. At the south-eastern extremity is the government station of Gulu. On this watershed are the Lamogi mountains to the west, and the Fatiko (Patiko) plateau to the east. The Lamogi mountains attain altitudes of over 4,000 ft., and are largely bush covered and full of caves. They mark the northern limit of the Acholi tribe, by far the most important tribe in these parts, which extends eastwards across the Assua as far as Mount Napono (see below). Both these mountains and the Fatiko plateau, which lies at about 3,600 ft., are fertile and well-watered, cotton and coffee being found here in a wild state. Behind Gulu the country is well-wooded, and the soil a rich red loam. Looking northwards from the Fatiko plateau the rolling plains stretch away for miles, covered with grass about 2 ft. long. The only trees visible are borassus palms standing out singly or in clumps here and there. To the south there is real long grass country, with grass from 6 to 12 ft. in height. There

is a good deal of light forest, but no timber of any value. From the watershed streams flow south to the Victoria Nile, and west and north to the Bahr el Jebel. Of the former, the Tochi, which marks the eastern boundary of Gulu, and the western limit of the swamp country of the central depression, is a marshy sluggish stream, though showing clear running water. It enters the Victoria Nile opposite Foweira. The Achwa rises in the Lamogi hills, and flows in a general WSW. direction into the Bahr el Jebel. At times it is quite dry, but in the rainy season, like nearly all the streams of Gulu, it rises very suddenly. There are several fine waterfalls on its course. It enters the Bahr el Jebel a little above Lake Rubi. In the rains it is 50 ft. wide at its mouth and waist deep, with banks only a few feet high. The Umi also rises in the Lamogi hills, and flowing west and then south-west, makes a deep gash in the high stony plateau through which it runs, entering the Bahr el Jebel just above Wadelai. Several small streams descend from the high ground to the east of the Bahr el Jebel, such as the Zokar, which comes in almost opposite the Balala swamp. It is a swift-flowing stream, 30 ft. wide and 3 ft. deep at its mouth, with a magnificent belt of primaeval forest on its banks.

The northern part of Gulu, in the narrowing angle between the Bahr el Jebel and the Assua, is wilder and more rugged, rocky and abrupt hills rising at frequent intervals. It is well-watered, the principal streams being the Aiyuge and the Umyama, which flow parallel with one another in a NNW. direction. The Aiyuge rises on the northern face of the Lamogi mountains, and enters the Bahr el Jebel opposite Dufile, through a papyrus swamp. The Umyama rises on the Fatiko plateau and joins the Bahr el Jebel at Nimule. It is the main artery of this region, and is navigable for a few miles from its mouth, where it is 30 yds. across and 4 ft. deep. In the dry season it shrinks to small dimensions, but in the rains rises very rapidly and comes down in a torrent, presenting an impassable obstacle. The Assua, the Umyama, and Aiyuge rivers discharge enormous floods after heavy rains into the

elbow bend of the Bahr el Jebel within a radius of 10 miles, and the country here is in consequence very difficult in the wet season. Between Nimule and the Assua there is a grass covered plain, very swampy, and with stretches of elephant grass. There is also a considerable amount of bamboo. It is of the solid or male variety, and grows in big clumps.

The river Assua separates Gulu from the Chua district to the north and the Lobor district to the south. The country beyond the Assua consists of undulating plains, lightly covered with thorn bush. In Chua the plains rise slightly as they approach the Agoro mountains on the Sudan frontier. There is no permanent water on the Chua plains except in the Assua, Agaga, and Arenga rivers. Kitgura, the government station of Chua, is situated on the south bank of the Poger, 50 miles north-east of Gulu station. The position is an exposed one, the country all around being flat and rather shadeless. A steady wind blows continually from the north.

A series of mountains, isolated or in groups, runs in a remarkably straight line, north-west from Mount Debasien through the districts of Lobor and Chua, to the Agoro mountains. Through the Kamalinga group (see below) on the western edge of the Karamojo plateau, the line is continued to the Lobor mountains, the highest summits of which are over 6,000 ft. On the south their sides are clothed up to about 3,500 ft. with dense bamboo forest. Above this is low scrub, succeeded near the summit by bare rock. There is permanent water upon them, and they contain iron ore which is worked by the natives. North-west of the Lobor mountains is the isolated height of Mount Napono (6,800 ft.). It is situated in the extreme south-eastern corner of Chua, and the district boundary crosses its southern slopes. From here the series is continued to the north-west by Mount Parabong (6,600 ft.), and beyond this again by the Akol hills, the highest point of which is 3,570 ft. All these rise very precipitously from the plains, and form rugged and most imposing features. There are many springs and water-holes upon them.

The Agoro or Imatong-Agora mountains are a large and important group, striking north-west and south-east on either side of the frontier. The northern and major portion is in the Sudan, and the southern in the Chua district of the northern province of Uganda. The frontier line traverses these mountains for some 75 miles, crossing the summits of Mount Agu (5,970 ft.), Mount Gule (6,660 ft.), Mount Ilala (8,790 ft.), and Mount Langia (10,120 ft.), the last named being the highest peak of the range. Precipitous ridges alternate with deep valleys, the hillsides being clothed in grass. There is a considerable rainfall, and the mountain streams and swamps are accompanied by dense tropical forest. The isolated heights of Lalak and Lamwa stand out to the south, rising abruptly from the Chua plains. The river Arenga rises just to the north of the latter.

West of the Agoro mountains, and between them and the Bahr el Jebel, there extends along the frontier a tract of high undulating country covered with forest and bush, and much broken by deep ravines. At different points solitary peaks stand up.

East of Mount Langia the long lofty ridge of Mount Tereenia runs SSE. from the frontier for nearly 20 miles, with an altitude, at its highest point, of 6,950 ft. East of this again, across 10 miles of open plain, is the post of Madial, 6 miles south of the frontier, under the north-western end of the Laroma or Loruwama hills. This extensive range, inhabited by a number of small tribes, strikes NNW. and SSE. for more than 40 miles, with an altitude of over 6,000 ft. The name Nangiya is sometimes applied to these hills from the tribe which inhabits the southern part of the range. At its southern end the range broadens out, terminating to the south-west in the height of Mount Rom. The flat plain to the west, from which these hills rise very precipitously, is covered with long grass and thick bush. At the foot of the hills, in the central part of the range, there is a long swamp. West of the swamp, and half-way between the Akol hills to the north-west and Mount Rom to the south-east, is Mount Kiteng, which marks the

northern limit of the Acholi tribe in this region. All the drainage from the western side of the Laroma hills flows northwards into the Kideppo (see below). To the south of Mount Rom is open country with good grazing extending across the Kapeta river to the Lobar mountains, some 35 miles away.

East of long. 34° , which runs to the east of the Lobar mountains and the Laroma hills, and between it and the escarpment of the Rift valley, the country, generally speaking, is undulating and covered with short grass. Here the plain, which has been sloping up steadily from the Bahr el Jebel, culminates in a long lofty plateau, which extends northwards from Mount Elgon to the Dodosi country, at an average altitude of 4,000 ft. The ground falls away fairly gradually to the west, while to the east there is an abrupt drop over the escarpment of the Rift valley. This plateau country is healthy, but water is scarce, and is usually only obtained by digging in the river beds, or is found in rock pools, called 'Ngurunga'.

The southern part, from Mount Elgon northwards to the Lokichari river, is known as the Karamojo plateau. It lies at an altitude of from 4,000 to 5,000 ft., and forms a water-parting between streams flowing east and south-east into the Turkwel, and others flowing into the Nile either by way of the Kioga lake-system, or through Lake Kirkpatrick and the Assua to the Bahr el Jebel. To the south-west the plateau falls down to a series of difficult swamps that drain into Lake Salisbury. There is no permanent water, except on the mountains north of the Kiboko river. Near Mount Maroto the natives have constructed large dams to collect and hold the water in the small streams which only flow in the rains.

The two most prominent features of the Karamojo plateau are the great mountains of Debasien and Maroto. The former is a striking mountain of very fine outline rising solitary from flat country to a height of 10,050 ft. The plain between it and Mount Elgon, 11 miles to the south, is traversed by the Kiboko or Kilim river, and here and there are a number of remarkably regular conical hills, rising about 1,000 ft. above the plain. The caravan route passes to the east of Debasien.

On the western side the mountain presents an amphitheatre of jagged red rocks and precipices which contrast finely with the dark green foliage of the well-wooded valleys below. The plain on this side merges into an expanse of marsh extending south-west to Lake Gedge. To the north Debasien has an arid appearance, a mass of tumbled rocks, with stunted trees and thin bush. The several streams which descend from the mountain lose themselves almost at once in deep sandy beds which cut the surface of the plain. To the north-west of Debasien, on the western edge of the plateau, is a striking group of hills, Kizima, Kamalinga (6,000 ft.), and Nopak (7,600 ft.), forming part of the series of isolated mountain groups already described as extending north-west from Debasien to the Sudan frontier. Kizima and Kamalinga have been rent from top to bottom, the sheer sides leaving but a narrow rift between them, while the northern flank of Nopak and the western flank of Kizima present almost unbroken walls of rock. North of Debasien is an arid plain, grassland with thin scrub. The eastern side of this plain is intersected with several small tributaries of the Turkwel. There is usually a fringe of forest along their banks. Nearly the whole of this south and south-east portion of the Karamojo plateau is uninhabited. Most of the permanent villages of the Karamojo are clustered round the wide sandy bed of the Natakalem, or Manimani river, which flows WNW. into the Lokichari. Water can always be obtained by digging in the river bed. There is good grazing, and plenty of shade. This district is fertile and cultivated, as is also the country between the Natakalem and Mount Maroto to the north-east.

Thirty miles due north of Debasien, Mount Maroto rises from the edge of the escarpment of the Rift valley to a height of 10,000 ft. The high portion of Maroto terminates on the eastern side in a stupendous cliff called Sogbeg, which drops absolutely sheer some thousands of feet. The northern flank of the mountain is also formed by a great wall of rock, down which two fine waterfalls descend into the valley below. On the fertile western slopes of the mountain, and on the ridges

either side of the Lia valley, are the settlements of the small but interesting Tepeth tribe. Owing to the altitude at which they live they are able to raise corn and find grass for their flocks when the plains are parched with drought. The river Maroto, a tributary of the Lokichari, issues from a fine gorge which opens to the north. The river only runs in the rains, but there are always a number of fair-sized pools in its bed.

South of Mount Maroto the Langatelio or Chemorongi range, which are a continuation of the Suk mountains, runs north and south, and forms the western wall of the Rift valley. Towards its northern end are two very prominent peaks, Kalapata and Kachakalo, both nearly as high as Mount Maroto.

North of the Lokichari are the open cotton-soil plains of the Jiwe tribe. They own enormous herds of cattle, but owing to the scarcity of water the whole tribe treks westward in the dry season to Mount Lobor, or to the permanent Zamuge or Kepeta river at the foot of Mount Rom. In the rains the whole country becomes a morass. Out of the plains, 15 miles north of the Lokichari, rises the waterless Mount Tororo or Jiwe. There is evidence of considerable recent desiccation in this district. Springs used to exist on Mount Tororo where none are found to-day. The Apule river was a permanent stream within living memory, but has had no running water in it for many years.

Twelve miles north of Mount Tororo a line of hills begins, which run approximately north and south for nearly 30 miles, very precipitous towards the north. The southern end of these hills mark the northern limit of the Jiwe country, and here on the river Chibak, and other watercourses which flow into it, there is a fairly large population and considerable cultivation, but no permanent water. The most northerly village is Lopetom's, situated in very open country. The Jiwe plains very much resemble the Athi plains of British East Africa, having short grass and hardly any trees.

The northern part of the plateau is the Dodosi country. For the most part it is open and pastoral, and the natives own

large herds of cattle and goats. West of the line of hills mentioned above, on the upper reaches of the Chibak river, is Lokutas village at an altitude of 4,700 feet. There is a large population here, but no trees. Water can always be obtained in the Chibak by digging. Lokutas is something of a centre for these parts, and is connected by road with Elgon, and also with Madial at the north-west end of the Laroma hills. North of Lokuta's the plain is dotted with a number of small granite hills, a most striking feature in the scenery of the Dodosi country. Beyond this, near the source of the Chibak, is the broken well-wooded country round Chudi-Chudi, where there is permanent water and a fairly large population.

The Dodosi plateau is terminated to the north by the westward bend of the escarpment and the Morongole mountains, the highest point of which is 8,300 ft. Much grain is cultivated near the mountains.

Between the Morongole mountains and the Laroma hills to the west there is a rapid descent northwards to the valley of the Kideppo or Kedef, a dry watercourse, which begins on the northern slopes of the Morongole mountains and continues in a WNW. direction just south of the Sudan frontier. It has a sandy bed, 70 to 200 yards in width, water being found in clay pockets along the edge. A belt of tropical vegetation and fine borassus palms marks its course. There is thick bush on the plains on either side of the upper reaches. Lower down there are splendid grazing grounds.

The Kideppo crosses the frontier into the Sudan east of Mount Latome, where it turns north-west. As already stated it receives the drainage of the western and north-eastern slopes of the Laroma hills.

THE EASTERN RIFT VALLEY AND TURKANA COUNTRY

In the north-eastern part of Uganda the Rift valley has ceased to be the remarkable well-defined trough, sunk between two bold and magnificent escarpments, that it is during the greater part of its passage through British East Africa. In the neighbourhood of Baringo it is about 20 miles across. North

of this it widens out into a great plain no longer bordered by continuous lines of escarpments, but by mountain slopes and ranges. Here the western wall of the valley bends away to the west, round the eastern slopes of the Suk mountains, into Uganda, where it is marked by the Langatelio range and Mount Maroto. From Maroto northwards, however, the Karamojo-Jiwe-Dodosi plateau is bordered by a steep escarpment for about 80 miles. Striking at first almost due north and south, for 15 miles, the escarpment turns west for the same distance, from opposite the Moruasokar mountains to where the post of Magosi is situated at its summit in very hilly country. Here it bends NNW., and continues in that direction for nearly 50 miles. For the last 20 miles or so there are numerous villages on the escarpment slopes, settlements of the Teuso tribe. These people grow quantities of tobacco and do a great trade with the Turkana. North of this line of villages the escarpment bends away to the north-west, reaching its culminating point east of the Morongole mountains, where its crest is over 2,000 ft. above the plains below.

Continuing in this direction it runs roughly parallel to the Laroma hills, 30 miles away to the west on the plains above, and crosses the frontier at Mount Zulia. Thence it extends round the eastern slopes of the Dodinga and Boya hills, in the Sudan, finally fading away into the plain that stretches north to the Pibor river.

That part of the floor of the Rift valley which lies within the limits of Uganda consists of a large plain of low altitude, broken by ranges of hills. Lake Rudolf, situated in the lowest part of the plain, lies at an altitude of 1,250 ft. above sea level. The principal river is the Turkwel, which from its source in the crater of Mount Elgon to its mouth on the western shore of Lake Rudolf forms the administrative frontier between Uganda and British East Africa. Flowing in a north-easterly direction the Turkwel receives the drainage of the north-eastern slopes of Elgon, the eastern slopes of Debasien and the Karamojo plateau, and practically all the drainage of the Suk mountains on the British East African side. The country on

the Uganda or left side of the river is a bush-covered plain which affords pasture to the flocks and herds of the Karamojo. Passing between the Suk mountains to the south and the southern end of the Langetelio range or Chemorongi mountains to the north, the Turkwel emerges on the Rift valley plain, and is joined on its right bank by the Wei Wei or Kerut river. The altitude at the junction of these streams, where the now-abandoned post of Ngaboto formerly stood, is 2,200 ft. above sea level. Northwards from here to beyond the Sudan frontier the country is inhabited by the Turkana tribe. They are entirely a nomadic people, wandering on the plains below the escarpment. They own large herds of cattle, a fair number of camels and donkeys, and enormous numbers of sheep and goats, in spite of the fact that in the dry season pasturage is exceedingly scarce. The rainfall in the Turkana country is very scanty. The heaviest rains are in April and May, when the Turkana plains become waterlogged and impassable. For the rest of the year they are dry and waterless, the later rains being only light showers. Grain cultivation, except near the Turkwel river and the Lubur mountains to the west of Lake Rudolf, is almost unknown.

North of the junction with the Wei Wei the Turkwel is a splendid river, its bed varying in breadth from 500 to 600 yds. Along its banks there is a belt of forest, tall acacia trees with thick undergrowth and long grass. Outside this strip the country is dry and arid and covered with thorn-bush. Northwards the Turkwel steadily diminishes in size, and the country becomes increasingly arid. Sixty miles from its junction with the Wei Wei it makes a great bed to the east, the Kagwalas hills rising on its left bank at the turn. As it approaches Lake Rudolf the river gradually widens again, but when within 3 or 4 miles of the western coast again diminishes in width, and gradually becomes lost on a sandy stretch about half a mile from the lake. Thus, in spite of the large volume of water contained in the upper reaches of the river, none enters the lake—at any rate above ground—except for a day or two in the rainy season.

North of the Turkwel from the point where it bends to the east is the northern Turkana country, which extends from lat. 3° N. to beyond the Sudan frontier. The north-western part is known as Dabossa. Here there are big open plains with comparatively little bush, though it is very thick in places. The rivers are divided into two main systems—those which drain into the Tarash river, and those which enter Lake Rudolf. None contain running water, except for a few days after heavy rains, when they become raging torrents. Water can be obtained by digging in the river beds, but is often unobtainable at less than 10 ft. Several mountains and many smaller hills rise from the low-lying plains of northern Turkana. Like those on the escarpment above, they rise straight up from the plain, and form prominent landmarks. The most noticeable feature about all these hills is the way in which they are tilted up in the same direction as the escarpment, that is to say they slope up gradually from the west and terminate precipitously to the east. A good instance of this is the steep escarpment in which the northern part of the Moruasokar mountains falls down into the plains.

These mountains, together with the Longolechom and Pelegech mountains, form an almost continuous range running NNE. and SSW. for 75 miles.

The Moruasokar mountains (Maru Asikar) are close to the escarpment, from which they are separated by a low pass, the escarpment at this point running almost east and west. On either side of this pass are the streams which form the headwaters of the Tarash river. A conspicuous cone-shaped summit rises above the pass, which leads into a narrow valley between the mountains and the escarpment, where there is good grazing. In places there is thick aloe-bush. The Turkana, who inhabit the valley, obtain water from pits sunk in the sandy bed of the Tarash. There are numerous salt and brackish springs, usually found in the most barren spots at the foot of the hills. The Moruasokar mountains are cut up by tremendously deep gorges formed by the many watercourses which feed the

Tarash river. In the dry season, however, the mountains are practically waterless except for a few pools in the clefts of the rocks, very difficult to find without a local guide. There is excellent grazing on the mountains, especially in a basin 10 miles wide, in the heart of the hills known as the Athenune valley. The Tarash river, flowing north-east, passes through a gorge in the north-western foothills of the mountain, and emerges on the plain to the north as a sandy watercourse about 100 yds. wide.

The Moruasokar mountains are continued to the north by the Longolechom and Pelegech mountains. As these strike NNE. and the escarpment NNW., the plain between them widens to 15 or 20 miles. Just below the mountains the plain is traversed by the river Tarash flowing in a northerly direction. Between the river and the escarpment many small hills rise from the plain, which in places is covered with dense aloes. The Tarash receives many streams from the mountains and the escarpment, and its volume in the rains must be very great. West of Mount Pelegech it splits up and spreads itself over the plain forming in the rainy season a vast swamp, known as Lojom. The drainage from the east side of Longolechom enters the Turkwel, but the drainage from both sides of Pelegech enters the Tarash, that to the east being carried off by the Nakolale river, which comes round the northern end of the range. Very little is known as to what happens to the Tarash north of the Lojom swamp. It is stated by a recent authority to flow north beyond the frontier, where it is reported to end in another large swamp, which is probably connected with some of the streams flowing north into the Sobat river. Other authorities say that in exceptional rains the waters of the Tarash reach Lake Rudolf. East of the ranges of Moruasokar, Longolechom, and Pelegech a desolate bush-covered plain extends to Lake Rudolf, waterless most of the year, an impassable morass in the rains.

Due north of the point where the escarpment bends to the north-west, and about 30 miles west of the northern end of Mount Pelegech is Mount Zingote, which strikes north-west

and south-east, parallel to the escarpment, from which a long spur, known as the Lokolopus hills, runs out north-east and almost joins it. East of this spur the plain is covered with dense bush, to the north-west it is more open. Near the eastern base of Mount Zingote are some remarkable springs, very strong, and dark blue in colour. They vary greatly in quality: it is possible to drink one, while the next a few yards away will be undrinkable. The native name for these springs is Neruzi. North of Mount Zingote, and separated from it by a valley covered with dense thorn, is Mount Mogila, which strikes north and south to the frontier. Salt and brackish springs exist on the mountain, and also on Mount Zulia, which, as already stated, marks the point where the escarpment passes into the Sudan. An open uninhabited plain extends between Mount Mogila and the escarpment. On the eastern side of Mount Mogila a river rises, called the Lyoro or Lora, and flows north-east for a few miles, when it completely disappears under the volcanic soil, its eastward course, just south of the frontier, being marked for a long distance by trees. Where it disappears it is stated to be 40 yds. wide and 12 ft. deep. Eastwards as far as Lake Rudolf is a waterless level plain, 100 miles across, covered with the usual dense thorn. Half-way between Mount Mogila and the lake is a considerable range of hills called Kaiserin, which extends both sides of the frontier. There is good grazing on the hills, and on the northern slopes in the Sudan are some large ponds with many springs.

LAKE RUDOLF

Lake Rudolf lies at an altitude of 1,250 ft. above sea level. It has an area of 3,970 square miles, a length of 185 miles, and a greatest breadth of 37 miles. It occupies the centre of an inland drainage system comprising southern Abyssinia, the northern part of the highlands of British East Africa, and the Turkana country. Though there is a wet weather and dry weather level of the lake, there is no doubt that it is steadily shrinking.

In Alia Bay, on the eastern side, there used to be islands, which are now hills half a mile from the shore. On the western shore there were formerly numerous lagoons, which are now dry.

The water of Lake Rudolf contains salt and soda. At the southern end it is undrinkable, but at the northern end, owing to the inflow of the Omo, it is fit to drink. Like the other lakes of the Eastern Rift valley it has no visible outlet. It is very shallow in the north, but deeper in the south, where soundings of 24 ft. have been obtained. There are three volcanic islands in the lake, of which the largest, El Molo or South Island, is in British East Africa.

About one-third of Lake Rudolf is in Uganda. The Uganda shore-line extends from the river Turkwel, here a dry and sandy bed about half a mile wide, to the point of the southern horn of Sanderson Gulf.

The country to the north-west of Lake Rudolf is an open plain with a few stunted trees. The beach is composed of black sand, hence the Swahili name of Basso Narok or Black Lake. Sanderson's Gulf in the north-western corner is formed by two spits or horns. The northern and much the larger of the two runs out due south between the Kibish river to the west and the Omo river to the east. The gulf is very shallow, and the horns appear to be closing. There is an active volcano near the mouth of the Kibish or Sacchi river, and a recent report states that much smoke could be seen daily. The shore is at first low and sandy, but before reaching the Turkwel river there are steep cliffs rising from the beach. The plain behind, as all round Lake Rudolf, except at the mouth of the Omo, is a dreary desert, and in many places entirely devoid of any vegetation at all. The watercourses are, as a rule, fringed with trees and dom palms.

Mount Lorusia, west of the northern end of Sanderson's Gulf, and in the Sudan, is the highest point in the Turkana country, having an altitude of 5,900 ft. The vast swamp through which the Kibish enters the lake extends almost to the foot of the mountain. Overlooking the southern part of

Sanderson's Gulf, and extending along the shore to the south of it, are the Lubur mountains, over 5,000 ft. in height. The hills are terraced from top to bottom, springs issuing from the higher levels, and trickling from terrace to terrace. The climate at the summit is delightful, and the pasture excellent. Mount Lubur, at the northern end of the range, is an extinct volcano, with a sharply defined rocky escarpment round the summit. It is reported that there are fresh springs and good grass in the crater, which is some 2 miles in diameter. On the shore below are numerous salt springs which enter the lake. A large river is said to flow westwards from the Lubur mountains and to disappear in the sand.

CHAPTER III

GEOLOGY

General—Distribution of Rocks—Ruwenzori.

GENERAL

It is impossible as yet to give more than a very fragmentary and incomplete account of the geology of Uganda. Those geologists who have visited the country have been for the most part more interested in the search for valuable minerals than in the collection of scientific data; and those visitors who have been properly equipped for the latter task have confined their attention to restricted areas and special problems. The following notes are, accordingly, no more than tentative.

Taken as a whole, Uganda is an elevated plateau elevated on the east and west and sagging down in the middle. The elevated edges are marked by the escarpments of the two Rift valleys, viz. the Mau-Elgeyo escarpment on the east (7,000–8,000 ft.) and the escarpment overlooking the Semliki, Lake Albert, and the Nile (about 4,000 ft. in most places) on the west; from these lines the surface slopes down to the central depression in which lie Victoria Nyanza (3,697 ft.) and Lake Kioga (about 3,300 ft.). The regularity of this formation is broken by two great mountain-massifs, Elgon in the east and Ruwenzori in the west.

These physical features are almost entirely of tectonic origin. The whole of East Africa, from north to south, may be conceived as a plateau of predominantly Archaean and Palaeozoic rocks, which has been in recent geological times raised to a considerable height and much broken up in the process. The whole plateau is thus covered with lines of

fracture, splitting it up into blocks which have tilted and slipped relatively to each other like badly-laid paving-stones.

The most remarkable instances of such disturbance are to be found in the two great rift valleys, where in each case a series of parallel faults has resulted in the collapse of a long narrow block, leaving on either hand a steep escarpment which may be as much as 5,000 ft. high from top to bottom. But the same type of dislocation occurs on a less sensational scale very frequently. Thus the Kagera valley, in the extreme south of Uganda, lies in a depression formed by the junction of two sloping blocks. The northern block, rising gently through Buganda province, dams up Victoria Nyanza by its slope, and ends in a straight east-and-west line close to its northern shore. Here begins a third block, this time sloping rather sharply downwards to another waterlogged depression, in which lies Lake Kioga. From this trough a fourth block rises to the high plateau of Lobar and Acholi.

These tectonic disturbances are of such a recent date that secondary features due to the progress of erosion have hardly had time to arise. Every detail of the topography of Uganda betrays it as a 'young' country, where the action of water has as yet produced insignificant effects. Thus the diorite dyke which forms the Ripon Falls, where the Nile emerges from Victoria Nyanza, would in a 'mature' country have been cut through, draining a large part of the lake; similarly the Murchison Falls would have been eliminated, so draining Lake Kioga; and in the same way the innumerable swamps, lakes, and stagnant reaches in which all the rivers of Uganda are rich would have been converted into well-defined watercourses, more or less deeply cut into the plateau, and containing regularly graded streams. Even this period—when a plateau is dissected by deep watercourses—is still considered early in the history of a region's physical features; so that in the case of Uganda we are presented with a quite unusually primitive scheme of topography.

It would appear, indeed, that the tectonic disturbances to which we have referred are actually still in progress. A con-

siderable mass of evidence exists which seems to indicate that the movements in question are producing effects which can be appreciated within living memory. This evidence, which relates chiefly to changes in the water-levels in the Great Lakes, is perhaps not beyond doubt. But even if it is to be entirely discarded, the evidence of raised beaches, alluvial deposits, and so forth proves conclusively that such changes have gone forward on a large scale during a period of time geologically continuous with our own; while the prevalence of earthquakes and the frequency, and indeed the increase, of volcanic activity show that the disturbances, even if not producing visible effects within a single lifetime, are certainly going on at present.

‘There is, in the physical phenomena of all this Central African region, an extraordinary simplicity, and a primitive boldness which produces on the mind an indelible impression that we are here dealing with a unique example of the initial stages in the shaping of a continental mass, and not, as in most other cases which confront the geologist, with the confused and denuded relics of activities which have long since become extinct.’¹ In other words, the forces which are now at work in Uganda and other parts of central Africa are actually elevating a mountain-chain which will be comparable, when it has attained its full development, to the Andes and the Himalaya.

Disturbances such as these must necessarily be accompanied by volcanic activity, which however, it must be remembered, is rather an effect or by-product of the disturbances than their cause. The main heights, here as in other great mountain-ranges, are not volcanic in origin; but in connexion with the range a number of volcanic cones have been formed, some of which surpass the highest elevations so far attained by the main massif.

In Uganda there are, beside innumerable smaller cones and craters, two main volcanic massifs—Elgon and the Mfumbiro mountains. Elgon, now extinct, is an immense

¹ J. E. S. Moore, *The Tanganyika Problem*, 1903, p. 49.

mass of volcanic matter, of great extent in proportion to its height, and of a fair age. The Mfumbiro volcanoes, which are still and indeed increasingly active, are of recent origin ; Mr. Moore even suggests that they may be recent enough to account for the shrinking in historical times of the Nile. It is at any rate clear that their formation must have produced this effect ; for, being thrown from wall to wall of the Rift valley like a gigantic dam, they cut off the waters of the Kivu district from the Semliki, and compelled them to flow southward into Tanganyika through the very ' young ' gorge of the Rusisi. Whether the loss of this drainage would appreciably affect the lower Nile is another question.

DISTRIBUTION OF ROCKS

The formations present in the Uganda Protectorate fall into four sharply defined groups :

1. *Archaean rocks*.—These consist chiefly of gneiss, quartzite, mica-schist, and granite ; they form the main body of the plateau. Even where overlaid with other formations they exist at no very great depth below the present surface ; and there are few large and continuous areas of the Protectorate in which they do not actually crop out. The largest continuous stretches of archaean outcrop appear to be in the north and west.

The formations concerned have not yet been examined in great detail, and their relative distribution cannot be described. Broadly speaking, however, the crystalline schists are the prevailing formation on both sides of the western Rift valley, while in the centre and north granite appears to be as common, if not commoner.

2. *Early sedimentary formations*.—While the later sedimentary rocks are notoriously absent from the main bulk of the African continent, the earlier groups of the Primary series are of frequent occurrence. It is indeed believed by good authorities that all this part of Africa was formerly covered by such rocks, and that they have only disappeared from the anticlinals as a result of long-continued denudation, while

still remaining visible in the synclinals. It is probably too soon to give a final opinion on this subject ; but it is at any rate clear that the primitive Archaean plateau is everywhere broken and diversified by comparatively small isolated deposits of palaeozoic sedimentary rocks, sometimes comparatively undisturbed, sometimes much folded and subjected to considerable metamorphism.

The most important group of palaeozoic formations is the Karagwe series, consisting chiefly of slates and schists, with some sandstones. A belt of Karagwe beds extends from the north end of Tanganyika through Ruanda into the Protectorate, reaching almost as far as Mbarara and running westward nearly to the shores of Lake Edward. The same series reappears in north-western Ankole and Karagwe, where it appears as a series of strongly-folded schists overlying the gneiss of the plateau and striking in a general north-north-west direction ; Ankole also contains coarse sandstones of the same period. These sandstones reappear close to the shores of Lake Victoria ; the northern margin of the lake is outlined by a belt of conglomerates. Farther north, in the granite districts of Busoga and Bukedi, there are considerable deposits of altered shales and grits ; Elgon is largely surrounded by metamorphic rocks of this kind. Whether the metamorphism in question is due to the disturbances which accompanied the upheaval of Elgon itself, or to events of a remoter past, does not appear to have been determined ; but the latter hypothesis would seem the more probable. The schistose and slaty Karagwe beds reappear from place to place in Bunyoro, here again overlying the prevailing gneiss.

North of about 2° north latitude details of the palaeozoic deposits are almost entirely lacking. White and pink sandstones are reported west of Lake Rudolf ; but most reports of the northern districts describe nothing but granite, gneiss, and quartzite.

3. *Recent sedimentary formations.*—The young character of the topography would not lead an observer to look for extensive modern deposits. In point of fact such deposits are

nowhere found in great quantities except in the Rift valley, where they have already accumulated to a great depth, forming the floor of the Semliki valley and gradually filling up Lake Albert at its southern end. The ungraded and mostly rapid rivers of Uganda are, of course, bringing down alluvial matter with considerable rapidity ; but they have hardly anywhere yet laid down enough to affect the topography, except in the Rift valley. The laterite formations which cover large areas of the surface, though not sedimentary in origin, may be mentioned here.

4. *Eruptive rocks*.—These play a comparatively small part in the Uganda Protectorate. The enormous lava-sheets of the East African high plateaux fall entirely outside its frontiers ; and the only considerable volcanic massifs, namely Elgon and the Mfumbiro Mountains, lie partially if not predominantly outside the Protectorate. A brief account of their main geological features may, however, be given here.

The eruption of Elgon is placed by Gregory (*The Great Rift Valley*, 1896, p. 235) in the earlier Pleistocene period. It is thus very much later in date than Kenya, which the same authority ascribes to the Eocene, the period in which the faulting processes began which led to the formation of the Rift valleys. Elgon is thus by far the latest of the great East African volcanoes, and its lava-flows are much more recent than the lava-sheets which cover the Laikipia and other plateaux. Professor Gregory makes the elevation of Elgon contemporary with the formation of the Nile gorge ; but this view is connected with the theory that before these two events the Nyanza drainage escaped eastward from Lake Kioga through the Turkwell river ; a theory which later studies of the physical characteristics of the Turkwell have failed to support. Indeed, it seems that the whole Turkwell valley is a water-course of quite recent origin, and only came into existence owing to the necessity for disposing of the drainage of Elgon.

The whole mass of Elgon is formed of volcanic material, arranged in alternate layers of ash and agglomerate. The ash

weathers into slopes of greater or less steepness, whereas the agglomerates break off into vertical cliffs, sometimes 600 to 700 ft. high. The resulting 'staircase' formation, on a very large scale, is characteristic of the whole topography of Elgon. Taken as a whole, the slopes are far from steep, the area of the mountain-base being remarkably great in proportion to its height. It is clear that the extent of the mountain was once even greater; since the deposits of ash and agglomerate could not have terminated at the time of deposition in cliffs and slopes such as they now present. These forms are plainly due to erosion.

It has been suggested by a highly-qualified observer that this erosion was carried out by the agency of waves. The suggestion is due to a comparison between the remarkable caves which exist in the agglomerate cliffs and the caves of sea-cliffs; the shape and general character appears in each case to be the same. But this theory has difficult implications. The caves extend upwards on the slopes of Elgon to a height of at least 7,500 ft.; we are therefore required to believe that, at the time of eruption and for a considerable period afterwards, this region was submerged to that depth below the sea or the Nyanza. But if the eruption of Elgon is rightly placed in the earlier Pleistocene, the emergence of the country necessary to produce the present conditions can hardly have taken place since that recent date. No doubt the Nyanza has shrunk; but that it should have fallen 4,000 ft. involves changes on an incredible scale. If, on the other hand, it is thought necessary to date the eruption of Elgon much earlier, it is necessary to account for the comparatively youthful appearance of the crater—in strong contrast to the much-degraded summit of Kenya—and to readjust the whole of the geological history as outlined by Gregory. On the whole, it would appear that the wave-erosion theory of the Elgon caves creates more difficulties than it removes.

It may be noted that the volcanic deposits of Elgon overlies in places granite and gneiss, in places metamorphic formations of the palaeozoic era.

The Mfumbiro mountains form an east-and-west belt of volcanic cones stretching across the Rift valley in such a way as to separate the Kivu (Tanganyika-Congo) drainage from the Lake Edward (Albert-Nile) drainage. They are all of very recent origin as time is reckoned by geologists; Moore thinks that they did not completely cut off the waters of Kivu from the Nile till as lately as 10,000 years ago. The eastern cones are the oldest, and have now become extinct; their craters are a good deal denuded and they show numbers of secondary cones. The westernmost summits are still active, and important eruptions have taken place here within recent years. The whole of the surrounding district is covered with more or less modern lava-flows, and lava-streams run for some 40 miles northward towards Lake Edward.

The group as a whole, though it contains no individual summits of the height of Kilimanjaro or Kenya, is the largest volcanic massif in Africa, and has perpetual snow on its highest peak (Karisimbi, 14,780 ft.).

Other eruptive groups are to be found in Debasien and round the foothills of Ruwenzori. The latter may be considered here. The vulcanism of this region was doubtless consequent on the disturbances which elevated the mountains. Four areas are affected, viz. Kichwamba, Katwe, Kyatwa, and Fort Portal. In each area the evidences consist of tuffs and agglomerates together with small occurrences of basalt, dolerite, and trachyte, and of such formations as cones, funnels, vents, and depressed areas of subsidence surrounded by walls generally of tuff. Crater lakes are common, and in some places the craters are remarkably regular and evenly distributed, like cells in a gigantic honeycomb. For a topographical description of these interesting crater-regions, reference may be made to chapter ii.

RUWENZORI

Early explorers conjectured that Ruwenzori was either a much-degraded volcanic range, or else that it represented a 'block-mountain', an upthrust crust-block bounded by

fault-lines. The first of these theories assimilated Ruwenzori to Kenya, where Gregory found unmistakable evidences of an ancient crater almost completely weathered away; the second made it, as it were, a positive case of geological conditions of which the Rift valleys are a negative case.

These early guesses were replaced by accurate information owing to the successive explorations of Scott Elliot, Moore, and H.R.H. the Duke of the Abruzzi. Scott Elliot discovered that the mica-schists and foliated gneisses of the plateau are not broken off short, as by a fault-line, at the foot of Ruwenzori, still less overlain by eruptive matter; but bent up to a steep angle so as to follow the slope of the mountain. Moore confirmed this observation, and found further that the schists stopped at an altitude of about 11,000 ft., beyond which level the mountains were composed of amphibolites. It was reserved for the duke's expedition to make a fairly complete geological sketch-map of the highest regions, showing that the summits are mostly composed of amphibolite, diorite, and diabase; but that Moore's generalization to the effect that the gneiss and schists stopped at 11,000 ft. was only true for the Mobuku valley, up which he had travelled; elsewhere they actually reach or at any rate closely approach the summits. The duke found, in fact, one large lenticular intrusion of amphibolites, 3 or 4 miles long, and including the whole of mountains Stanley and Baker, while all the other main peaks revealed small intrusions of the same kind at or near their summits. In a few places small outcrops of basalt were found.

It is thus clear that Ruwenzori belongs to the same type of mountain-range as the Alps; a type otherwise unknown in the whole of Africa south of the Sahara. It is an upthrust mass of amphibolites which has raised the gneisses and mica-schists of the plateau into a great anticlinal dome, now in part broken through on the summits by the action of erosion. The forces which raised it are doubtless identical with those which have raised, and are probably still raising, the high plateaux; and thus Ruwenzori appears as the first instal-

ment of that great mountain-chain which, according to Moore, is being formed in the centre of Africa.

In geological age Ruwenzori is younger than the Alps, which were newly raised when the first disturbances leading to the creation of the Rift valleys took place ; and its topography is correspondingly less mature. The weathering of the summits has nowhere on Ruwenzori reached such a stage as in the Alps, and the valleys of the two systems are markedly different. The same forces have, however, been at work. The small glaciers of Ruwenzori were once of much greater extent ; unmistakable moraines exist far down the valleys ; and even where these have not been identified, the shapes of the valleys (as shown, for instance, in Signore Sella's photograph of the Bujuku valley, in De Filippi's *Ruwenzori*, facing p. 273) are eloquent of glaciation; though not, as in Switzerland, showing the effects of a double glacial cycle. At present the lowest glacier-snout is at 13,690 ft. ; at one time glaciers certainly extended as low as 7,000 ft. or even lower ; indeed, indications of ice-action have been reported at 4,600 ft. The present snow-line is about 14,000 ft. ; but the photographs of different explorers suggest that it is liable to noticeable variation. The shrunken glaciers now existing appear to exercise little or no erosive action, judging from the purity of their streams.

The foothills and subordinate peaks are mostly composed of the gneisses and mica-schists mentioned above, dipping steeply away from the centre of the massif on all sides. Quartzite is also common, and in places the underlying amphibolites come to the surface.

Volcanic activity has left abundant traces round the lower slopes of Ruwenzori ; these have been considered in the preceding section, under *Eruptive Rocks*.

CHAPTER IV

CLIMATE¹

General—Climatological Data—Principal Meteorological Stations.

GENERAL

THE Protectorate of Uganda may be climatically divided into four regions. The first an extremely arid region of altitude 1,500–1,600 ft. from the north end of Lake Rudolf to the north end of Lake Baringo, including the shores of Lake Sugota, and forming an area of 50–80 miles width, running from the north-west to the shores of the lakes. A characteristic of this district is a great range of temperature such as might be expected in desert country. The day temperature may rise to 115° in the shade and sink in winter to 50° at night. During winter a cold dry wind blows frequently and strongly from the north-east. The rainfall is extremely variable, some districts having no rain for two or three years, others having very violent and short downpours. North of lat. 4° on the west shore of the lake the ground rises, the climate is much better, and the temperature more equable.

The second division is the forest region and includes the countries bordering on Lakes Victoria, Albert, Kioga, and Albert Edward, the valley of the Semliki, the Victoria Nile between Kioga and the Ripon Falls, and the slopes of Mount Elgon. As will be noted later on the chief drawback of this country is the frequency and violence of the thunderstorms. Rain is abundant throughout all the year here, and although the altitude of the land does not exceed 4,000 ft., the heat does not cause discomfort, the temperature rarely rising beyond 100° F. The nights are nearly always cool. Winds are light except on the lakes, where heavy squalls and storms

¹ For climate statistics see Appendix I

are frequent. Sir Samuel Baker says that a violent storm arose every day at 13 h. on Lake Albert, accompanied by thunder and rain; their canoes had to be pulled in shore until the daily storm had passed.

The third division includes the Nile district, the country north of the Victoria Nile, east of the main Nile, west of the Rudolf watershed, and south of lat. 5° N. Here the rainfall is very variable, and is heaviest near the banks of the Nile, where at two stations the annual fall exceeds 40 in., whereas at other places the average rainfall is not half this amount. The rainiest and hottest season is from April to November. The country along the banks of the Nile is extremely hot, and has a higher average temperature than the more hilly country to the east. In the extreme north the Latuka climate is said to be like that of the plateau country to the east of Lake Victoria. Strong southerly winds blow down the Nile valley in the summer and northerly winds blow up river in winter.

The fourth division, the Alpine region, includes the Ruwenzori range, over 8,000 ft. in height, and similar heights in Ankole, the upper regions of Mount Elgon, and the tops of the mountains in the Nile and central provinces. The average temperature at this altitude is estimated at 45° F., and on the snow and ice may descend as low as 25° F.

Air Pressure and Winds

In July a region of high pressure (30.236 in.) lies over the South Indian Ocean between St. Paul and Mauritius, while a region of less pressure lies over East Africa between the Equator and the Southern Tropic. Hence air currents blow into this region as south-east trade winds. In addition, there is at the same time an area of low pressure (29.449 in.) over the heated regions of Central Asia, opposed by a region of high pressure over the northern Indian Ocean. Hence the air streams from south-west to north-east into Central Asia forming the south-west monsoon into which, to the north of Zanzibar, the south-east trade wind gradually merges. Owing to the preponderance of land in the northern hemisphere the

thermic Equator falls everywhere to the north of the geographical Equator, with the corollary that the south-east trade wind blows into the northern hemisphere, which explains the prevalence of the south-east wind in Uganda to the north of Lake Victoria, and as far as lat. 7° N. the climatic conditions of the southern hemisphere prevail.

In January there are barometric maxima over Eastern Asia and to the south of the southern tropic (30·157 in.), while a wide minimum region extends over the middle Indian Ocean and over Middle and South Africa. It follows, therefore, that north of Mozambique the north-east monsoon blows into Middle and South Africa, while to the south the south-east trade continues its sway, but is frequently diverted to the east by local causes.

Temperature and Rainfall

The Victoria Lake and parts of Uganda west of it have the equatorial climate; there are, therefore, two summers and two winters with two rainy seasons separated by a short cessation of precipitation. The two warmer periods arise when the sun, in its yearly oscillation between the two tropics, is vertically over the equator, i.e. when the hemispheres have spring or autumn. The two cooler seasons arise when the sun approaches the vertical over the tropics, and the hemispheres have summer or winter. Hence October and February–March are the warmest months, July and November–December the coolest, but the changes between warmest and coolest months are not great, and amount to only 4°–5° F. as a rule.

The chief cause of widely differing climates is the moving air rising up the slopes of the mountains. When the wind blows strongly from the sea, it blows dry over the coast and low hinterland until it strikes the steps of the great successive plateaux. Here all the winds are compelled to rise, and as they do so they cool and condense their water vapour causing rain or fog. Hence these winds are called ‘ascension winds’ and the rains ‘ascension rains’. As the winds blow from the easterly quadrant, it follows that only the eastern slopes get

the ascension rain, the western slopes, or westerly extensions of plateaux, lie in 'rain shade' so to speak, and rely for their precipitation on the rainy season when the sun is in the zenith. The wind has still moisture left which it can give off to higher regions, but in the mountains, 9,000 ft. to 13,000 ft., the air pressure is so small and the sun's rays so powerful that condensation cannot take place; from which it follows that in the mountains up to 9,000 ft. it is rainy, but from that altitude to 13,000 ft. it is arid, at a still higher altitude the temperature is so low that condensation again takes place, but is now precipitated as snow.

On Lake Victoria it is seen that the south and eastern shores are arid, while the west and north humid and covered with vegetation; the explanation of these phenomena is found in the fact that the south-east wind reaches the lake dry, that it takes up moisture on its passage across, and deposits the same when it reaches the plateaux on the other side.

CLIMATOLOGICAL DATA

North-east Area

Of this region little is known except the passing observations of travellers. From the region of Lake Baringo (lat. $0^{\circ} 45' N.$, long. $36^{\circ} 5' E.$) violent north-east winds are said to descend on dried-up plain to the west, which rise to gale force at night.

Respecting the country farther north Höhnelt observes 'that on Lake Rudolf the temperature in March and April rose to above $102^{\circ} F.$ Very strong south-east winds blew day and night. On the southern part of the lake during the main rainy season there were only three heavy downpours, on the northern shore there were none, and on the south-west shore none till the end of July. The whole region is very dry with the exception of the mountainous parts'.

Forest and Lake Area

The temperature on the shores of Lake Victoria is very uniform, the mean yearly temperature varying between limits

of 1° – 3° F. The mean extremes are 89° – 90° F. and 55° – 57° F. At a height of 3,900 ft. to 4,000 ft. the mean annual temperature varies between 68° and 72° . March and April have as a rule the highest mean monthly temperatures, and are closely followed by September and October. July is the coolest month, but the small range of temperature is apt to alter the position of the extremes.

The prevailing winds on the shores of Lake Victoria are land and lake winds. On the west and north shores, owing to the south-east trade, the lake winds prevail all the year giving rise to uniform rainfall, while on the eastern and south-eastern shore this wind becomes a land wind, and travelling over dry steppes causes the ground to become so dried up that no tropical forest trees can take root.

On the north shore the climate is uniformly mild and humid without excessive precipitation. The worst feature of the climate of the region is the frequency of severe thunderstorms with dangerous lightning, which are said to come up from the lake; but at Kampala come over the hills from the north. At Entebbe about 200 thunderstorms (which generally start at 3 hr. or 15 hr., are said to occur in the year, but this total seems excessive and is not borne out by the records. At Bukoba on the west side of the lake there are on the average 97 thunderstorms, and at Muanza on the south shore 75 per annum, showing that thunderstorms are prevalent all round the lake, and suggesting that the number at Entebbe would be about half the above estimate.

The mean range of temperature in South Uganda is not great, the maximum being 25° – 27° F., which is much less than in the north where, at Wadelai, a range of 53° F. occurs in November, and in several other places there are ranges of between 35° F. and 39° F. The moderate range in the south is due to the comparatively low absolute maxima and rather high absolute minima temperatures which vary between 87° – 90° F. and 48° – 55° F. respectively.

The mean annual rainfall on the north shores of the lake varies between 48 in. and 59 in.; a short distance inland

at Masaka it is about 10 in. less per annum, while at Bukoba on the west side of the lake the rainfall is over 75 in. Maxima of rainfall varying between 10 in. and 16 in. per month have been registered in April and May. The greatest downpours registered in this district for 24 hours are from 4-5 in. Rain falls in every month of the year, and on the average one day out of every three is a rainday.

From the data available it appears that cloud values are never very small at Entebbe, where they vary between 4.4 in December and 5.4 in August, but inland the cloudiness seems to diminish. On other parts of the lake cloud is measured as follows: at Muanza, February to April, 6.1; June to August, 2.6; at Bukoba, December to February, 4.2, March to May, 5.1, June to August, 4.1, September to November, 5.2; the latter results not differing much from those at the northern end of the lake.

The amount of sunshine experienced in this area is not excessive; thus the mean number of hours at Entebbe vary between 4 hrs. 26 min. in April and 6 hrs. 33 min. in January, and the average for the year is 5 hrs. 44 min., as compared with 5 hrs. 16 min. in Jersey and 4 hrs. 2 min. at Kew. Inland, at Masaka, the average rises to a maximum of 8 hrs. 8 min. in June and an average of 7 hrs. 22 min. for the year.

Good observations of winds at Entebbe are available at 7 hr., 14 hr., 21 hr. They show that at night (21 hr.) there are in the year 79.2 per cent. of calms; in the morning, at 7 hr., the wind rises and calms at 49.9 per cent.; at 14 hr. the wind is blowing steadily and there are only 9.5 per cent. of calms. The wind throughout the year blows persistently from the quadrant south to west, and there are small seasonal but great diurnal changes. At 7 hr. the south to west winds amount to 39 per cent., south and west being stronger than south-west. At 14 hr. the south to west winds amount to 77 per cent., the south, south-west, and west being 25 per cent., 30 per cent., and 22 per cent. respectively. At 21 hr. the south to west winds sink to 19 per cent., the south-west being the least prevalent. For the year on the mean of the day,

south to west winds from 45·1 per cent., calms 46·1 per cent., leaving rather over 8 per cent. for winds from other directions. To sum up, in the morning the wind begins to blow inland from the lake, increasing in strength as the sun rises ; blows strongly in the afternoon and dies away in the evening. At Masaka, not far from the west shore of the lake, the wind blows throughout the year from the quadrant east to south. There appears to be no calm days. The seasonal percentage of winds from this quarter is as follows, showing the relative amounts :

	<i>E. + SE. + S.</i>
Winter (Dec.-Feb.) . . .	35 + 22 + 12 = 69 per cent.
Spring (Mar.-May) . . .	23 + 42 + 17 = 82 „
Summer (June-Aug.) . . .	31 + 37 + 14 = 82 „
Autumn (Sept.-Nov.) . . .	38 + 22 + 6 = 66 „

At Jinja, where the Nile leaves the lake, the west wind is the most prevalent throughout the year ; the south wind also blows throughout the year but is not so frequent, and there is also a certain amount of east wind in every season. In summer (6 per cent.) and in winter (11 per cent.) there are a certain number of calm days :

	<i>E.</i>	<i>S. + SW. + W.</i>	<i>Calm.</i>
Winter . . .	22 per cent.	31 + 0 + 45 = 76 per cent.	—
Spring . . .	8 „	29 + 8 + 53 = 90 „	—
Summer . . .	6 „	24 + 6 + 51 = 81 „	6 per cent.
Autumn . . .	9 „	29 + 1 + 48 = 78 „	11 „

The Nile and Alpine Areas

In the extreme north of the Uganda Protectorate along lat. 4° 30' N., between Lake Rudolf and the Nile, there are conditions almost as arid as the Sahara itself, but in the Madi, Bari, and Lotuka countries there is a regular rainfall sufficient for a certain amount of agriculture and pasturage. Nevertheless, all the northern province of the Uganda Protectorate, except in Bunyoro and the actual valleys of the Nile and Assua, is dry and bare compared with the rest of the country.

The rainfall on the Ruwenzori range is probably about 160 in. per annum on the western and 100 in. on the eastern

slopes. It rains there almost daily, and in the dry season, January and July, the mountains are shrouded in mist and clouds, and only at sunrise and sunset are the peaks occasionally clear. The rainfall of the eastern province is about 30 in. per annum, rising to as much as 60 in. in the vicinity of Mount Elgon. Along the actual course of the Nile to the Sudanese frontier the annual rainfall is approximately 50 in., rising to nearly 100 in. along the Semliki river in the south; but away from the rivers in the northern province of Uganda the rainfall may drop to 5 or 10 in. per annum in the less elevated districts north of lat. 3° N., where in the autumn rain ceases, and the winter season experiences a continuous drought.

From the health point of view the kingdom of Uganda is healthy for Europeans if they live at a fair altitude and take the necessary precautions, but the eastern, central, and north-west provinces are generally unhealthy. Anywhere near Ruwenzori the climate is pleasant and cool.

PRINCIPAL METEOROLOGICAL STATIONS

Nimule

Lat. $3^{\circ} 39'$ N. ; Long. $32^{\circ} 10'$ E. ; Alt. 2,034 ft.

This station is situated on the south frontier of the Sudan, of which country it is the most southerly Nile port, but in the absence of any other station in that region of the Protectorate the climatological data collected there over a series of years is of considerable service, when local conditions are allowed for, in arriving at the meteorology of the northern province.

The mean *temperature* of Nimule varies between 84.5° F. in March and 77.2° F. in August, and has a mean for the year of 80.95° F., the difference between the hottest and coldest months being but 7° F., a very moderate range when compared, say, with the 24° F. that represents the difference between the hottest and coldest months at Kew. The warmer portion of the year extends from December to May inclusive, the average temperature being 1.5° F. higher than the yearly

mean, and corresponds, with the exception of May, with the period of least precipitation, only one-third of the year's rainfall being precipitated in the six months specified. The mean daily maximum temperature, taking the year as a whole, is 92.6° F., March furnishing the highest mean maximum temperature, 96.6° F., and August the lowest, 88° F. Although there does not appear to be very much variability in the temperature when the means of a number of years are compared, the following statement, showing the highest and lowest monthly maxima recorded, during the period 1904-13, indicates that the temperature is not so equable as it appears at first sight.

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Highest	101	99.7	105.2	100.7	95.6	100.5
Lowest	93.6	92.2	91.8	88.7	84.5	82.0
Difference	7.4	7.5	13.4	12.0	11.1	18.5

	<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.
Highest	99.3	93.3	96.6	95.8	96.2	97.2
Lowest	82.2	82.9	84.7	80.0	87.4	88.2
Difference	17.1	10.4	11.9	15.8	8.8	9.0

It will be noted that the least variability occurs in the drier portion of the year.

The mean daily minimum temperature ranges from 66.4° F. in August, to 72.4° F. in March, the mean for the year being 69.3° F., but, as in the case of the mean daily maximum temperature, considerable fluctuations of temperature occur from year to year as is evidenced by the fact that in 1895 the mean daily minimum for the year was no more than 64° F., whereas in 1911 it was ten degrees higher. It will be noted from the statement that follows that the fluctuation of the mean daily minimum temperature is on a wider scale than that of the mean daily maximum temperature, the latter having the steadying influence of the sun, whereas the former is dependent on the atmospheric conditions prevailing at night.

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Highest	75·3	79·6	80·4	76·1	76·9	75·4
Lowest	62·1	61·6	62·3	63·7	67·8	63·5
Difference	13·2	18·0	18·1	12·4	9·1	11·9
	<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.
Highest	78·2	74·9	81·8	74·3	77·7	75·2
Lowest	60·5	58·8	57·8	64·8	62·4	59·2
Difference	17·7	16·1	24·0	9·5	15·3	16·0

The mean monthly maximum temperature is at its highest in March, 103·2° F., and at its lowest, 93·2° F. in August, the mean for the year, 97·9° F., being almost two degrees warmer than the highest shade temperature recorded at Kew in the course of forty-five years. The mean monthly minimum temperature varies between 61° F. in August and 67° F. in May, the latter being the month of maximum rainfall and, oddly enough, minimum cloud. The range of temperature is considerable, the difference between the mean monthly maximum and minimum in January being 39·7° F., and in May, when the difference is at its lowest, 29·5° F. The absolute maximum temperature recorded in the period 1904–13, inclusive, was 110° F. in March, 1907, and the absolute minimum 53° F. in January 1905. The differences between the highest and lowest maxima and minima recorded during the period 1904–13 are as follows :

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Maximum	12·8	10·4	13·8	14·8	9·8	8·8
Minimum	20·2	19·3	18·9	9·0	9·0	13·0
	<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.
Maximum	11·5	13·4	10·4	9·5	7·1	5·9
Minimum	16·2	13·0	16·0	14·0	12·0	16·0

The greatest variability in the absolute maxima temperatures is noted in April and the least in December, while the greatest difference recorded in absolute minima occurred in January, the lowest temperature recorded in that month, in

1912, being 73·2° F., or 20·2° F. more than that recorded in the corresponding month of 1905.

Rainfall.—Although December in seven years out of ten, January in six out of ten, and February in two out of ten, proved to be rainless months, rain may fall in any month of the year at Nimule to the extent of an inch and a half or more, but over an extended period the three winter, in the European sense, months only furnished 4 per cent. of the year's precipitation of 42·3 inches. May, as a general rule, can be counted upon for the largest rainfall in the year, the mean for ten years being as much as 6·12 inches, but the most consistently wet months are July and August, which in the period under review never failed to furnish less than 2·5 inches, whereas a dry May has been recorded when less than an inch of rain has fallen in the entire month that experienced twenty-four rainless days. The mean number of rain days at Nimule is slightly over 72 per annum, of which, practically, ten occur in May, nine in both July and August, one in December, and less than one in January. The total rainfall being 76 per cent. more than that of Kew, and the number of rain days 57 per cent. less, it will be gathered that the density of precipitation is greatly in excess of the European standard (Kew, 0·14 in.), and is, in point of fact, more than four times as great (0·6 in.). The following table gives the mean density of the rainfall in each month of the year and shows that the intensity of the fall is greater in November than at any other time.

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	
Inches .	0·42	0·55	0·60	0·53	0·62	0·47	
	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Inches .	0·54	0·60	0·63	0·60	0·73	0·46	0·60

The situation of Nimule, at the foot of a great escarpment affording protection from the *wind* from every direction but the east, renders the wind observations at this place of local interest only. It may be mentioned that the wind is practically easterly throughout the year, calms are of the rarest

occurrence at hours of observation, and that the mean wind strength, both in the morning and afternoon and from one month to another, scarcely ever exceeds Beaufort scale 3, and is usually of strength 1.

Cloud is chiefly remarkable for its absence. In October the mean of the day is 2·2 (scale 0–10) and in November 2·0, but for the balance of the year it varies between 1·5 and 1·9, the mean for the twelve months being 1·7. In the course of ten years the highest and lowest monthly means recorded were as follows :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Highest . .	3·3	2·8	4·5	3·5	2·6	2·6
Lowest . .	1·0	1·0	1·0	1·0	0·2	1·0
	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
Highest . .	2·6	3·6	3·0	8·6	8·2	3·1
Lowest . .	1·0	1·0	1·0	1·0	1·0	1·0

Wadelai

Lat. 2° 47' N. ; Long. 31° 30' E. ; Alt. 2,296 ft. (?)

The climate of Wadelai, which lies about 70 miles to the south-west of Nimule, is very similar, judging from the somewhat meagre data available, to that of the Sudan port. The mean yearly temperature, 79·3° F., differs from that of Nimule by merely 1·6° F., a difference almost accounted for by the difference in altitude alone. The mean daily maximum is practically the same as at Nimule, while the mean daily minimum is 2·6° F. lower. The hottest month, March, coincides with Nimule's hottest month, but the mean temperature is 3·5° F. lower, while the coolest months, July and August (77·5° F. and 77·8 °F. respectively), are slightly warmer than at the Sudan station.

The *rainfall* at Wadelai is practically 2 per cent. higher than at Nimule. Seven per cent. of the year's precipitation falls in the dry months, December, January, and February, while the remaining 93 per cent. is fairly evenly divided among the remaining nine months, 30 per cent. being

precipitated during the period March to May, 28 per cent. from June to August, and the balance, 35 per cent., from September to November, the last period including the month of greatest rainfall, October, 6.61 in. From the above statement it will be apparent that at no period of the year can an absence of rain be depended upon, and this fact is emphasized when the nine years of rainfall observations available are examined in detail, when it is found that during that period over 2.5 in. of rain fell at some time or other in any month of the year.

There is no seasonal change evinced in the direction of the winds at Wadelai; throughout the year they blow steadily from the east with an occasional spell, in March and April, of northerly winds. From December to February 95 per cent. of the winds blow from the direction north-east to south-east, 84 per cent. from March to May; 94 per cent. from June to August, and 96 per cent. from September to November. From the statement appended, showing the direction of the wind per cent. for the entire year at 7 hr. and 14 hr., it will be noted that there is a very small diurnal change in the direction, what there is amounting to a falling off in the north and north-east winds as the heat increases and a corresponding aggrandizement in the percentage of winds from the east.

		<i>N.</i>	<i>NE.</i>	<i>E.</i>	<i>SE.</i>	<i>S.</i>	<i>SW.</i>	<i>W.</i>	<i>NW.</i>	<i>C.</i>
At 7 hr.	.	4.7	8.0	81.2	2.0	0.3	1.7	1.0	0.0	1.1
At 14 hr.	.	3.2	2.5	91.5	0.0	1.2	0.0	0.5	0.3	0.8

Gulu

Lat. 2° 45' N. ; Long. 32° 25' E. ; Alt. 3,700 ft.

Gulu, which is situated at the east corner of a triangle that has Wadelai at the west angle, and Nimule, 60 miles from Gulu, at the apex, stands on a plateau considerably above the valley of the Nile, and consequently experiences a less torrid temperature than either of the Nile stations mentioned. The mean daily *temperature* for the year is 74° F., and ranges from a maximum of 76.9° F. in January to a minimum of

71·4° F. in July, the latter temperature being about 10° F. higher than the average for Kew in August. From its minimum in July the mean temperature increases gradually until the maximum is attained in January, after which date it drops by small gradations to its minimum, the range from highest to lowest being but 5·5° F., a margin equivalent to the difference between the April and May mean temperatures at Kew. The mean daily maximum temperature, as at Wadelai, is at its highest, 88·3° F., in January, but the lowest mean daily minimum temperature, 61·1° F., is an attribute of the month of June, and is attained considerably earlier in the year than at either Wadelai or Nimule.

The presence of the Fatiko mountains to the north and Mount Moru and other heights to the east doubtless account in a measure for the comparatively heavy *rainfall* of Gulu, a rainfall that has exceeded 73 in. in the year, and averages almost 61 in. over a period of six years. A small modicum of rain (0·13 in.) falls on an average in January, but apart from this month an appreciable rainfall can be expected in every month, ranging from 1·84 in. (3 per cent. of the year's aggregate) in December to 8·72 in. (14·3 per cent. of the yearly fall) in August. At Gulu the rainfall from the January minimum rises sharply to 8·17 in., the May mean, falls to 5·74 in. in July, and again advances to its August maximum of 8·72 in., after which it falls to its minimum. The same phenomenon, though to a less marked degree, is noted in the cases of Nimule and Wadelai, this district being about the limit where the two rainy seasons, characteristic of the southern portion of the Protectorate, merge into the single rainy season of the Sudan. The mean number of rain days at Gulu, 139, is about 93 per cent. greater than at Nimule, but the aggregate rainfall being but 44 per cent. greater, it follows that the density of rainfall, i. e. average amount of precipitation per rain day, is less than in the case of the Nile town. The figures for Gulu are as follows, and show that the intensity of the fall is greatest in June, August, and September, and singularly small in July and October.

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	
Inches . .	0·10	0·28	0·43	0·44	0·46	0·50	
	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Inches .	0·39	0·53	0·54	0·37	0·38	0·42	0·44

Koba

Lat. 2° 19' N. ; 31° 29' E. ; Alt. 2,300 ft. (?).

This town, situated on the east bank of the Bahr el Jebel, a few miles north of Lake Albert (altitude, 2,028 ft.), lies about 25 miles south of Wadelai, with which place it has many climatological features in common. The highest mean temperature, 83° F., as at Wadelai, occurs in March, the lowest mean temperature, 76·5° F., in August ; the mean temperature for the year, 78·9° F., is but 0·4° F. less than the Wadelai mean. The mean daily maximum temperature (90·7° F.) is 1·3° F. less than the Wadelai record, but the mean daily minimum, 67·2° F., for the year, is half a degree higher. It may here be mentioned that the periods of observations both at Wadelai (1901–6) and Koba (1907–10) are unfortunately short, but, as they do not overlap and bear one another out, together they furnish valuable information concerning this region of the Protectorate. The *rainfall* at Koba, 43·14 in., coincides with that of Wadelai, but is 10 in. in excess of the mean rainfall of Butiaba, a rainfall station situated on Lake Albert (lat. 1° 50' N., 31° 26' E., alt. 2,028 ft.), at the foot of the Bunyoro plateau. It will be noted from the table that follows that the period December–February at all three places is comparatively dry, and that the period June–August is drier, considerably more so at Kobe and Butiaba, than the periods March–May, September–November, the dual rainy season system being more firmly established at the southern stations. The smaller rainfall at Butiaba is explained by its situation on the western slope of a plateau, a subject already dealt with. It is interesting to note when considering the rainfall of this place that if the rainfall of Masindi, a town situated on the plateau at an altitude of 3,764 ft., and only 29 miles

farther east of Butiaba, is added to the rainfall of the last-mentioned place and the aggregate halved, the resultant rainfall is practically that of Koba and Wadelai, proof that the gain of precipitation to Masindi, and loss to Butiaba, is due to the respective situation of the stations and their capacity to intercept the south-east wind with its burden of moisture.

SEASONAL RAINFALL

	<i>Dec.- Feb.</i> (a)	<i>Mar.- May.</i> (b)	<i>June- Aug.</i> (c)	<i>Sept.- Nov.</i> (d)	<i>Percentage of total fall.</i>			
	in.	in.	in.	in.	(a)	(b)	(c)	(d)
Wadelai .	2·93	12·89	12·16	15·12	7	30	28	35
Koba .	3·53	14·24	10·97	14·40	8	33	25½	33½
Butiaba .	2·34	12·75	7·75	10·69	7	38	23	32

The average number of rain days at Koba and Butiaba, 95 and 73 respectively, are in proportion to their rainfalls with the natural corollary that the density of the rainfall, taking the year as a whole, is practically the same, 0·45 in. which is about the same as at Gulu but considerably less than at Nimule.

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
	in.	in.	in.	in.	in.	in.
Koba .	0·24	0·28	0·26	0·50	0·64	0·63
Butiaba .	0·38	0·34	0·51	0·44	0·63	0·41

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
	in.	in.	in.	in.	in.	in.	in.
Koba .	0·47	0·44	0·59	0·46	0·39	0·32	0·45
Butiaba .	0·43	0·50	0·59	0·35	0·38	0·26	0·46

The most striking difference in the intensity of the rainfall is found in the first three months of the year, during which period 0·7 in. more rain falls at Butiaba than at Koba on four or five less days, with the result that the intensity of the rainfall is 0·45 in. per rain day at the former place (at Kew the mean for the same period is 0·12 in.) and 0·26 in. at the latter. The mean intensity for the year at these two places is about three times as great as that at Kew.

Masindi

Lat. $1^{\circ} 40'$ N. ; Long. $31^{\circ} 50'$ E. ; Alt. 3,764 ft.

Masindi is situated about 30 miles from Lake Albert and at height of about 1,740 ft. above the lake level ; between the town and Butiaba, the nearest lake port, extends the Budongo forest, while to the north-west is a range of mountains that stretches in a south-westerly direction to the neighbourhood of Hoima, 30 miles to the south-west of Masindi.

Although separated from it by a distance of 90 miles, the *temperature* of Masindi is analogous to that of Gulu. The mean temperature for the year at Masindi, 73.4° F., for instance, is only half a degree less than that of Gulu, the highest mean temperature, 76° F., is merely 0.9° F. less, and the lowest mean temperature, 71° F. in August, differs from the lowest mean temperature at Gulu by but 0.4° F. The mean daily maximum temperatures are, to all intents and purposes, the same at both places, and the mean daily minimum, taking the year as a whole, is only 1.2° F. less at Masindi. The highest temperature recorded at Masindi, 104° F., occurred in November 1913, and the lowest temperature observed, 41° F., in the same month in 1916.

The *rainfall* at Masindi, 51.85 in. per annum, is about 9 in. less than the mean average at Gulu, but almost the entire difference is accounted for by the heavier rain in the months of June to September, at the more northern stations.

	Dec.— Feb.(a)	Mar.— May.(b)	June— Aug.(c)	Sept.— Nov.(d)	Percentage of total rainfall.			
	in.	in.	in.	in.	(a)	(b)	(c)	(d)
Gulu .	4.14	18.32	21.74	16.75	6.8	30.0	35.6	27.6
Masindi.	4.63	16.85	13.87	17.20	9.0	33.0	25.0	33.0
Hoima .	7.44	18.02	12.88	18.84	13.0	31.3	22.6	33.0

At Hoima the mean rainfall, though less than at Gulu, is about 5.3 in. more than at Masindi, the difference being accounted for by the greater rainfall from December to May, and particularly in the three months, December to February, which experience, on an average, the precipitation of the

high proportion of 13 per cent. of the total rainfall of the year. As Masindi averages 26 rain days less than Gulu and 31 less than Hoima, it will be gathered that the density of the rainfall is greater at Masindi than at either of the other stations; the difference, a comparison with the statement given on p. 116 shows, is not very great in the case of Gulu, but amounts to 0·07 in. per rain day in that of Hoima.

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Masindi . .	0·47	0·39	0·47	0·52	0·49	0·55
Hoima . .	0·27	0·39	0·44	0·40	0·39	0·31

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Masindi . .	0·42	0·41	0·45	0·45	0·40	0·33	0·46
Hoima . .	0·40	0·39	0·46	0·42	0·37	0·43	0·39

The statement that follows shows the fluctuation of the rainfall from the normal for a period of six years (the normals being derived from data obtained for a longer period when possible), and indicates that the rainfall is more consistent at Masindi than at either Gulu or Hoima, the average fluctuations at the first-mentioned place being 8 per cent. as compared with 12 per cent. at the other stations.

Percentage of fluctuations from the normal rainfall.

	1916.	1915.	1914.	1913.	1912.	1911.
Gulu . .	+20	+5	-5	-20	+7	-15 (6 mths.)
Masindi . .	+6	-3	+2½	+4	-7	+25
Hoima . .	+25	-14	+8	-3	-2	-21

Fort Portal

Lat. 0° 43' N. ; Long. 30° 8' E. ; Alt. 5,299 ft.

Fort Portal, the highest meteorological station in the Protectorate, is situated about 30 miles to the south of Lake Albert and about 35 miles to the north-east of the highest point in the Ruwenzori range. Thanks to its altitude and to a less degree to its canopy of cloud, the mean *temperature* for the year, 68·1° F., is no more than the mean temperature of a number of places, such as Bermuda, Galveston, and New Orleans, at sea level, but many degrees farther north in latitude, and is indeed less than 1° F. higher than the mean

temperature of the Spanish city of Seville, which is situated in latitude 37° N. The chief characteristic of the temperature of this station is its absence of fluctuation; the hottest month, March, 69.7° F., is merely 3.3° warmer than the coldest month, October, while the difference in the mean temperature of the four seasons (December–February, 68° F., March–May, 69.5° F., June–August, 67.7° F., and September–November, 67.1° F.) is negligible. An absolute minimum temperature of 40° F. has been observed (October 1908) at Fort Portal, but the mean of ten years lowest recorded temperatures is found to be 47° F., or fifteen degrees above freezing point. On the other hand, the highest absolute maximum temperature recorded is no more than 89° F., a temperature that has been attained at places situated between latitudes 60° – 65° N. The fluctuations in the mean yearly temperature from the normal of 68.1° F., it will be noted from the following statement, are inconsiderable, and average, for the ten years 1907–16, no more than 2.1° F. either way.

	1907.	1908.	1909.	1910.	1911.
	$^{\circ}$ F.	$^{\circ}$ F.	$^{\circ}$ F.	$^{\circ}$ F.	$^{\circ}$ F.
Mean Temp.	67.7	65.5	64.7	65.3	72.7
Diff. from Normal. . .	-0.4	-2.6	-3.4	-2.8	+4.6
	1912.	1913.	1914.	1915.	1916.
	$^{\circ}$ F.	$^{\circ}$ F.	$^{\circ}$ F.	$^{\circ}$ F.	$^{\circ}$ F.
Mean Temp.	72.1	67.1	66.4	68.0	67.7
Diff. from Normal. . .	+4.0	-1.0	-1.7	-0.1	-0.4

The highest mean monthly maximum temperature, 85.5° F., occurs in March, and the lowest mean monthly minimum temperature, 49.9° F., in October. The difference between the highest, 34.5° F., and lowest, 29.1° F., ranges of temperature is very small and reminiscent of Entebbe, where the difference is no more than 5.1° F.; at Entebbe, however, the mean range is but 22.4° F., whereas at Fort Portal it amounts to 31.7° F.

The *rainfall* at Fort Portal averages 55.4 in. per annum (about the same as at Killarney and about 55 per cent. greater than that of Kew), and is very unequally distributed over

the year, 42 per cent. falling in the period September to November, 30 per cent. in the three months March, April, and May, only 16 per cent. in the months June, July, and August, and 12 per cent. in the period December to January. The percentage of the total rainfall falling each month, and the density of the fall, are as follows :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Percentage of total fall	2	5	10	10·5	9·5	5·5
Density of fall, inches	0·28	0·35	0·47	0·41	0·38	0·36

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Percentage of total fall	3	7·5	14	16·5	11·5	5	100
Density of fall, inches	0·28	0·35	0·52	0·47	0·38	0·36	0·40

April and May in the early rain season, and September and October in the late rainy season are the months of greatest rainfall, while in September, October, and March the density of the fall is at its highest, and in January and July at its lowest. The mean annual fluctuations amount to about 8 per cent., or about the same as at Masindi, the greatest fluctuations during the period 1907–16 being, as will be seen, +22 per cent. in 1916.

	<i>1916.</i>	<i>1915.</i>	<i>1914.</i>	<i>1913.</i>	<i>1912.</i>
Difference per cent. of actual rainfall from the normal .	+22	—13	+12	—2	—2

	<i>1911.</i>	<i>1910.</i>	<i>1909.</i>	<i>1908.</i>	<i>1907.</i>
Difference per cent. of actual rainfall from the normal .	—6	—9	+13	—5	+0·8

Over an inch of rain has fallen in a day in every month of the year, the maximum fall in 24 hours being 4·32 in. in May 1912. Other heavy downpours were noted in October 1909, when 3·99 in. fell in 24 hours ; January 1906, 3·94 in. ; September 1910, 2·48 in. ; August 1909, 2·31 in. ; and April 1911, 2·0 in. It is interesting to note that the maximum rainfall in 24 hours was recorded on only four occasions in the same year that furnished the maximum rainfall for the month : in January 1906, when the total rainfall of the month, 3·94 in., fell on one day ; May 1912, when 4·32 in. fell on one day, bringing up the month's total to 8·82 in. ; June

1913, when out of a total fall for the month, 6.27 in., 1.49 in. fell in 24 hours, and in October 1909, when one day contributed 3.99 in. to a month's aggregate of 11.6 in.

The average number of rain days in the year is 136.6, but the range is considerable, as can be gathered from the fact that in 1912 only 71 per cent. of the normal occurred, while in 1916 the number of rain days exceeded the normal by 33 per cent. The maximum and minimum number of rain days in each month during the period 1904-16 were as follows :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Maximum	9	13	18	21	21	16
Minimum	1	3	7	7	7	4
	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
Maximum	15	18	23	25	26	21
Minimum	1	7	7	13	9	1

The data available with regard to *cloud* shows that the mean value, 2.8, scale 0-10, is very low for a station in such close proximity to the mountains. Taking the year as a whole, there is more cloud at 7 hr. than at 14 hr., and less cloud at 21 hr. than at 14 hr., the mean for the first observation being 3.1, for the second 2.9, and for the third 2.3. The amount of cloud is less in the dry months, December to February, than during the remainder of the year, and greatest during the months of September to October.

	<i>Dec.- Feb.</i>	<i>Mar.- May.</i>	<i>June- Aug.</i>	<i>Sept.- Nov.</i>	<i>Year.</i>
7 hr. . . .	2.4	3.3	3.3	3.3	3.1
14 hr. . . .	2.5	3.0	3.0	3.2	2.9
21 hr. . . .	1.8	2.1	2.4	2.8	2.3
Mean of the day	2.2	2.8	2.9	3.1	2.8

The highest monthly averages during the period 1909-13 were, at 7 hr. 4.8, June 1913, 4.6, September 1909; at 14 hr. 6.0, October 1909, 5.6, August and September 1909, at 21 hr., 5.1, April 1910, 4.9, July 1910. Notwithstanding the low cloud value at this station, the average amount of *sunshine* recorded at this equatorial station, 4 hrs. 37 min. per diem, is less than 40 per cent. of the possible, and no

more than the records of a number of watering-places on the south coast of England can show. The maximum and minimum daily averages for each month of the year during the period 1904-13 are as follows :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Maximum	6.05	6.7	6.9	6.1	7.01	7.4
Minimum	4.15	3.4	2.4	2.7	3.5	3.4

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Maximum	6.5	5.3	5.8	5.5	5.2	6.5
Minimum	3.2	2.0	2.3	1.9	2.9	1.3

May is the month of greatest mean sunshine and October the month having the lowest average, 3.7 hrs., a record akin to the amount of sunshine recorded on an average at Birmingham.

The chief characteristic of the *wind* at Fort Portal is its lack of strength. Half the wind observations made at 7 hr. and 21 hr. record a calm, and one-third of the observations at 14 hr. do likewise. The average wind strength is about Beaufort scale 1, the mean for the 7 hr. observations being 0.8, for the 14 hr. observations, 1.15, and for the 21 hr. observations, 0.95. The average number of winds per month of strength 4 and upwards is as follows, the number of observations per day being three.

<i>Strength.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
4-5	3.3	4.1	2.3	3.0	3.0	1.4
6-7	0.1	0.3	0.7	0.1	0.4	0.3
8-12	0.0	0.0	0.1	0.0	0.0	0.0

<i>Strength.</i>	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
4-5	1.4	1.7	3.0	1.4	2.1	3.4
6-7	0.1	0.6	0.9	0.1	0.0	0.4
8-12	0.0	0.0	0.1	0.1	0.0	0.0

As only three winds of gale strength were recorded in the course of nearly 8,000 observations, it will be gathered that Fort Portal lies in a very sheltered position ; indeed, in the course of seven years less than 250 observations of winds of strength 4 and over were recorded, an average of but

35 per annum, though observations at this place are made thrice daily. From which direction the 'strong' winds may be expected can be gathered from the following statement giving the average number of such winds per annum recorded from each point of the compass.

<i>N.</i>	<i>NE.</i>	<i>E.</i>	<i>SE.</i>	<i>S.</i>	<i>SW.</i>	<i>W.</i>	<i>NW.</i>	<i>Total.</i>
15	0·4	1·7	0·3	15·3	0·1	2·4	0·0	35·2

February and September are the months of strongest winds, and December to February the season of greatest wind strength.

The direction of the wind in the winter (December–February) months is variable, with a tendency towards the north; from March to August southerly winds prevail, and from September to November the wind is inclined to be variable, with the south wind in the ascendency, as the following table indicates :

<i>Winds in Quadrants per 100 observations.</i>							
			<i>N.</i>	<i>E.</i>	<i>S.</i>	<i>W.</i>	<i>Calms.</i>
Dec., Jan., Feb.	.	.	18·8	8·2	13·9	14·0	45·1
Mar., April, May	.	.	12·0	5·4	24·1	10·8	47·7
June, July, Aug.	.	.	10·7	4·7	25·7	10·6	48·3
Sept., Oct., Nov.	.	.	18·9	5·1	20·5	11·0	44·5
Mean of the Year	.	.	15·0	5·9	21·0	11·6	46·5

It is interesting to note that if the 'strong' winds recorded in each quadrant were in number proportionate to the winds blowing in that quadrant, it would be expected that ten winds of over strength 4 would be observed in the north quadrant (in reality 15·2 were observed), 4 in the east quadrant (in place of 2 in actuality), 14 in the south quadrant (15·5 is the average recorded), and 8 in the west quadrant in place of the mean of 2·5 observed over a number of years. With respect to diurnal change it is found that from December to February the predominant westerly 7 hr. wind veers to the north in the afternoon and backs to the west in the evening; during March to August the prevalent south wind at 7 hr. adds to its frequency in the afternoon and in the evening, though calms predominate, blows from the south

or north ; in the second rainy season the wind is variable at 7 hr., with south and west winds being equally common, in the afternoon the east winds are of rare occurrence, and the north and south winds more frequent, while in the evening the south winds are as numerous as the aggregate of winds blowing from all the other points of the compass.

Mubendi

Lat. $0^{\circ}30' N.$; Long. $31^{\circ}22' E.$; Alt. 5,122 ft.

Mubendi is situated at the summit of a long hill at an altitude that only falls short of that of Fort Portal, 75 miles farther west, by less than 200 ft., and it is not surprising to find that, so far as can be gathered from the data available, its climate bears a close resemblance to that of the longer established station, the rainfall alone showing a notable difference. The mean *temperature* at Mubendi attains its maximum of $72.1^{\circ} F.$ in February, and its minimum in December, but in a climate that has a mean monthly fluctuation of $0.4^{\circ} F.$ from the normal it is somewhat beside the mark to refer to maxima and minima.

The *rainfall* at Mubendi, which attains its maximum, 6.22 in. in April, and its secondary maximum, 6.06 in., in September, is remarkably regular, the average fluctuation from the normal, 47.3 in., during the period 1911-16, being but 6 per cent.

	1911.	1912.	1913.	1914.	1915.	1916.
Difference per cent. of actual rainfall from the normal	-3	-4	+10	-8	-2	-10

The minimum monthly rainfall at Mubendi is higher than that of the stations in its vicinity, for whereas some of these experience months in which no rain falls whatsoever, at Mubendi, the month of lowest rainfall, June 1912, registered 0.34 in. The density of the rainfall is the same, 0.4 in., as at Fort Portal, where there are about 20 more rain days per annum, and the proportion of the total rainfall precipitated in each season is very much the same at both places. Thus from December to February 16 per cent. of the total rainfall

occurs at Mubendi and 12 per cent. at Fort Portal; from March to May the proportions are the same, 30 per cent. in each instance; from June to July, 19 per cent. falls at Mubendi as compared with 16 per cent. at Fort Portal, and from September to November, 35 per cent. of the year's aggregate falls at the more easterly station, or 7 per cent. less than the percentage for Fort Portal.

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Percentage of total fall	3	8	10	13	7	5
Density of fall, inches	0.34	0.41	0.48	0.43	0.32	0.41

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Percentage of total fall	3	11	13	10	12	5	100
Density of fall, inches	0.26	0.50	0.40	0.36	0.45	0.31	0.4

It is interesting to note that the maximum density, 0.5 in., which at Fort Portal is attained in September, is reached at Mubendi a month earlier. The rain days at Mubendi average 117 per annum, and apparently the fluctuations are less than at Fort Portal, for the maximum (138) in the period under review only exceeded the normal by 18 per cent., while the minimum (91) was not less than 78 per cent. of the normal. The maximum and minimum number of rain days for each month is as follows :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Maximum . . .	7	13	13	21	14	10
Minimum . . .	2	3	7	11	8	2

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
Maximum . . .	9	16	22	22	25	14
Minimum . . .	1	7	8	6	8	5

Mbarara

Lat. 0°31' S. ; Long. 30°47' E. ; Alt. 4,500 ft.

This station, which is situated in Ankole, about 90 miles to the SSE. of Fort Portal and 75 miles to the west of Sango Bay, on Lake Victoria, has a mean *temperature* not dissimilar to that of the former station, the mean yearly temperature being 1.7° F. cooler. The highest mean temperature, 68.5° F., occurs in March, as at Fort Portal, and the lowest, 64.9° F., in

November : the mean daily maximum temperature, 79.4° F., coincides with the Fort Portal datum, the hottest month being the same at both places, but the mean daily minimum for the year, 53.5° F., is nearly 3.5° F. lower than the corresponding figures for the more northern stations. The mean monthly maximum (82.8° F.) for the year and mean monthly minimum (50.3° F.) correspond very closely at both places, but the hottest temperature ever recorded at Mbarara, 96° F., is seven degrees higher than the corresponding temperature at Fort Portal, and the absolute minimum temperature, 34° F., six degrees cooler.

Although the temperatures are alike the *rainfall* statistics show a great disparity at these two places, the mean for Mbarara for the six years 1911–16, as given in the Annual Report of the Botanical, Forestry, and Scientific Department, being but 53 per cent. of the average rainfall at Fort Portal. The month of greatest rainfall at Mbarara is April with 4.23 in., and of least rainfall, July, 0.48. Judging from the short period of six years the rainfall is subject to considerable fluctuations as will be gathered from the statement that follows that shows that the average fluctuation from the normal, 29.41 in., is as much as 11.5 per cent. :

	1911.	1912.	1913.	1914.	1915.	1916.
Difference per cent. of actual rainfall from the normal .	-2	+20	-30	-3	+7	+7

It should be mentioned that the early records at this station give a much higher rainfall (for the period 1902–5 the mean is given at 69.3 in.), but it is believed that these figures are not reliable. The density of the rainfall at this station for the above period of six years would appear to be extraordinarily low for the district, the mean being no more than 0.28 in. per rain day as compared with 0.4 in. in the case of most places in the neighbourhood. The months of maximum density are September, 0.37, and April, 0.31, and of lowest density, May, 0.2 in., and August, 0.22 in.

Cloud at Mbarara averages 4.2 for the year, and is considerably greater than either at Fort Portal or Masaka. The after-

noon cloudiness is greater than in the morning and there is less cloud in the evening than at any other time of the day. The highest mean of the day cloud values are found in November, the mean month being 4·8, while the lowest value is attained in March, 3·7. In November a daily average value of 7·1 has been recorded. The mean cloud values at different seasons of the year are as follows :

	Dec.-Feb.	Mar.-May.	June-Aug.	Sept.-Nov.	Mean.
7 hr.	4·4	4·2	4·1	4·2	4·25
14 hr.	4·6	4·3	4·3	5·5	4·7
21 hr.	3·5	3·5	3·8	4·0	3·7

With such high cloud values it is surprising to find the mean average daily *sunshine* as high as at Nimule, where the mean cloud is but 1·7. The month of maximum sunshine is July, with 8 hrs. 54 min., while the month with least sunshine is April, that, however, averages 7 hrs. 27 min. That there are considerable fluctuations in the amount of sunshine will be gathered from the following statement, showing the maximum and minimum daily means recorded in each month of the year during the period 1904-13 :

Hours.	Jan.	Feb.	Mar.	April.	May.	June.
Highest	11·6	10·9	11·35	10·2	11·75	11·9
Lowest	6·6	5·5	5·25	5·3	5·3	5·8

Hours.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Highest	11·35	11·75	11·1	10·6	10·1	11·25
Lowest	7·1	6·0	5·2	6·1	5·6	1·2

The predominant *wind* at Mbarara comes from an easterly direction, but that its pre-eminence is not unapproached at certain seasons of the year by winds from other directions of the compass, will be gathered from the following statement showing the direction of the wind, in quadrants and for the mean of the day, for the four seasonal quarters :

	N.	E.	S.	W.
Dec., Jan., Feb. . .	20·4	34·0	14·9	30·7
Mar., April, May . .	28·0	34·0	19·5	18·5
June, July, Aug. . .	16·4	42·3	24·3	17·0
Sept., Oct., Nov. . .	16·7	40·8	17·5	25·0
Mean of the Year . .	20·4	37·8	19·0	22·4

In the dry season, December to February, the west wind blows with almost as great frequency as the east : in the early wet season, March to May, the north wind shares with the east the distinction of being the prevailing wind : in the second dry season, June to August, easterly winds are strongly predominant, while in the fall of the year the west wind increases in frequency.

The average mean wind strength at Mbarara is not far short of three and a half times as great as at Fort Portal : the morning wind, for instance, is three and a half times stronger ; the afternoon wind three to four times as strong, and the evening wind rather over three and a third times as strong. The period of greatest wind strength is June to August, and of least wind strength, December to February : July, 4·3, being the month of maximum and January that of minimum strength.

In every hundred wind observations, taking the year as a whole, 22 give a wind strength of 4–5 Beaufort scale, 7 of strength 6–7, and 4 of gale strength : of these ' strong ' winds 14 blow from the direction of the east quadrant, 7 from the west quadrant, and 6 from each of the north and south quadrants ; if the ' strong ' winds occurred in exact proportion to the wind frequency, 12·5 would blow from the east, 7·5 from the west, 6·7 from the north, and 6·3 from the south, which proportion is very nearly borne out in actuality.

The diurnal changes in the wind directions of this station are as follows : in the months December to February, the wind, which at 7 hr. is usually blowing from either the east quadrant (38 per cent.) or the west quadrant (28 per cent.) continues to blow from the east at 14 hr., but becomes pronounceably westerly in the evening (43 per cent.). From March to May the easterly morning wind (42 per cent.) ranges from the north-east to the south at midday, and is inclined to be variable in the evening. During the dry months of June to August, when half the winds blowing at 7 hr. range from the north-east to the south-east, 65 per cent. come from the direction east to south at 14 hr., but at night they may arrive

from either the east (37 per cent.), south (23 per cent.), or the west (21 per cent.). The morning wind in the autumn is again easterly in character (49 per cent.), remains easterly in the afternoon, but at night becomes more westerly (37 per cent.) than easterly (29 per cent.).

Mbale

Lat. $1^{\circ} 2' N.$; Long. $34^{\circ} 6' E.$; Alt. 3,800 ft. (?)

Mbale lies on the foothills to the west of Mount Elgon at an altitude of about 3,800 ft., and has a mean *temperature*, $73.2^{\circ} F.$, akin to that of Jinja, a station 80 miles to the south west. Both of these stations attains their highest mean temperature in January and their lowest mean temperature in July, but whereas there is a difference of $5.4^{\circ} F.$ at Mbale between the highest and lowest, at Jinja the range is only $2.9^{\circ} F.$ The mean daily maximum temperature reaches $89.2^{\circ} F.$ in January, while the mean daily minimum temperature is as low as $60.9^{\circ} F.$ in August. The highest temperature recorded at Mbale was $98^{\circ} F.$ in January 1915, and the lowest $50^{\circ} F.$ in June 1909. The fluctuation in the mean daily maximum and minimum temperatures from year to year are considerably less than occur at Nimule, and do not amount to more than $5.5^{\circ} F.$ taking one month with another. The differences (period 1909–15) in degrees Fahrenheit between the highest and lowest mean daily maxima and minima are given below :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Maxima . .	5.4	5.3	4.9	9.8	4.2	6.6
Minima . .	7.0	4.6	9.4	4.5	4.3	4.1
	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
Maxima . .	6.6	5.9	5.0	4.8	3.3	5.5
Minima . .	3.0	3.2	2.7	3.6	7.7	6.8

The *rainfall* at Mbale and at the neighbouring stations of Kumi and Ngora (about 40 miles to the north-west), amounts to over 50 in. per annum at all three places, and at all three the period of dry weather between the two equatorial wet seasons is scarcely discernable, indeed the line of demarcation,

such as it is, is only to be traced in the month of July (June in the case of Kumi), and is represented by a slight falling off in the downpour, which starts in March and ends about October or November. The amount of rain falling quarterly is as follows :

	a.	b.	c.	d.	Percentage of total rainfall.			
	Dec.- Feb.	Mar.- May.	June - Aug.	Sept.- Nov.	a.	b.	c.	d.
	in.	in.	in.	in.				
Mbale . .	4.96	17.44	15.00	13.04	10	35	30	25
Kumi . .	5.81	21.20	14.84	9.09	12	41	29	18
Ngora . .	6.36	19.24	16.07	14.81	11	34	28½	26½

An examination of the table that follows shows that in half the months of the year the rainfall is above the average, three months experience an average rainfall, while three are distinctly dry, the latter being invariably December, January, and February :

PERCENTAGE OF TOTAL RAINFALL IN EACH MONTH

	Jan.	Feb.	Mar.	April.	May.	June.
Mbale . .	2	4	9	13½	12	10½
Kumi . .	2	6	11	16	15	8
Ngora . .	1	6	9	11	14	10

	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Mbale . .	8	12½	10½	7	8	3
Kumi . .	9½	11½	4½	8	5½	3
Ngora . .	8	10½	9	12	5½	4

The rainfall at Mbale is liable to considerable fluctuations from the normal, and for the period 1909-16 the fluctuations averaged over 9 per cent. per annum, the limits being + 17 per cent. in 1911 and - 20 per cent. in 1915. The mean number of rain days at Mbale (169) being considerably greater than those at Kumi (114) and Ngora (120) and the rainfall being somewhat less, it follows that the density of the fall at the former station is smaller than either of its neighbours, the yearly means being 0.29 in. at Mbale, 0.45 in. at Kumi, and 0.47 at Ngora. The first-mentioned mean is considerably less than at the majority of stations in the Protectorate, and on a par

with the rain density at Mbarara, while the data for the two other stations are about the average :

	<i>Dec.-Feb.</i>	<i>Mar.-May.</i>	<i>June-Aug.</i>	<i>Sept.-Nov.</i>	<i>Year.</i>
	in.	in.	in.	in.	in.
Mbale .	0.26	0.33	0.30	0.27	0.29
Kumi .	0.58	0.51	0.42	0.32	0.45
Ngora .	0.48	0.49	0.51	0.41	0.47

The *cloud* observations at Mbale are not numerous enough to permit of any definite decision being arrived at with respect to this phenomenon, but it is gathered that the cloud values at 7, 14, and 21 hours are in similar proportion as $3\frac{1}{2}$ is to 7 and 5. The months with greatest cloud are from March to August, and particularly April, May, and June, while the winter months of December to February are most free of cloud at all hours of the day :

	<i>Dec.-Feb.</i>	<i>Mar.-May.</i>	<i>June-Aug.</i>	<i>Sept.-Nov.</i>	<i>Year.</i>
7 hr. .	2.7	4.3	4.3	2.8	3.5
14 hr. .	5.3	8.6	7.4	6.0	6.8
21 hr. .	2.8	6.7	5.6	4.6	4.9
<i>Mean</i>	3.6	6.5	5.8	4.4	5.1

The predominant *wind* at Mbale, except in the period from March to May, when the south wind occurs with greatest frequency, is that from the east (43 per cent.) ; there is very little (4 per cent.) north wind, but a fair amount of wind from the south (28 per cent.) and the west (25 per cent.). The prevalence of the east wind can be determined from the following table, showing the wind in quadrants at different seasons of the year :

PERCENTAGE OF OBSERVATIONS

	<i>N.</i>	<i>E.</i>	<i>S.</i>	<i>W.</i>	<i>Calm.</i>
Dec., Jan., Feb. . . .	9.4	37.0	28.0	25.6	0
Mar., April, May . . .	2.5	31.9	35.9	29.7	0
June, July, Aug. . . .	1.2	47.4	27.0	24.4	0
Sept., Oct., Nov. . . .	3.8	54.9	21.8	19.5	0
Year	4.2	42.8	28.2	24.8	0

The diurnal variation of the wind is regular; an east wind of great frequency at 7 hr. is inclined to veer to the south or west at 14 hr., and to remain fairly constant until night, when

it evidently backs to the east again. Taking the year as a whole, it is found that a wind frequency of 60 per cent. east at 7 hr. becomes 43 per cent. at 14 hr. and 41 per cent. at 21 hr. ; on the other hand a 22 per cent. wind frequency from the south at 7 hr. increases to 30 per cent. at 14 hr. and 31 per cent. at 21 hr., and a wind frequency of 18 per cent. west at 7 hr. increases to 27 per cent. at 14 hr. and 28 per cent. at 21 hr. The mean wind strength for the year at Mbale is 2·3, Beaufort scale ; in the autumn it is at its lowest, 2·0, in the winter months it rises to 2·3, attains its maximum (2·7) during the months March and May, and falls to 2·1 during the months June to August. The morning mean strength of 2·2 increases to 2·4 by 14 hr., and falls again to 2·2 by evening.

Jinja

Lat. 0° 26' N. ; Long. 33° 11' E. ; Alt. 3,722 ft.

Jinja, the station situated on Napoleon Gulf, the northernmost estuary of Lake Victoria Nyanza, at the point where the Nile leaves the lake, as already mentioned, has a *temperature* very similar to that of Mbale, but its mean temperature, 72·6° F., differs from that, 70·7° F., of Entebbe, which lies about 60 miles to the south-west and almost on the Equator, by 2° F. Perhaps the most striking feature of the temperature of Jinja is its lack of variation from year to year, which the following comparison renders obvious :

DIFFERENCES FROM THE NORMAL

	1916.	1915.	1914.	1913.	1912.
	° F.	° F.	° F.	° F.	° F.
Mean daily max. temp. 82·4 ° F. .	− 2·0	− 0·2	− 1·0	+ 0·4	− 0·6
Mean daily min. temp. 62·9 ° F. .	− 1·3	− 0·3	− 0·1	− 1·1	+ 0·6
Mean daily temp. 72·6 ° F. .	− 1·6	− 0·2	− 0·5	− 0·3	− 0·0
	1911.	1910.	1909.	1908.	
	° F.	° F.	° F.	° F.	
Mean daily max. temp. 82·4 ° F. .	.	+ 0·1	+ 0·4	+ 1·4	+ 1·0
Mean daily min. temp. 62·9 ° F. .	.	− 0·6	− 1·2	− 2·0	+ 1·9
Mean daily temp. 72·6 ° F. .	.	− 0·2	− 0·4	− 0·3	+ 1·5

The mean temperature itself is also remarkable for its regularity from month to month, the highest mean, that of January, 73.7° F., being but 2.9° F. higher than the lowest mean temperature, that of February. The range of temperature varies between 24° F. in May and 32° F. in February. An absolute maximum temperature of 90° F. or over, with a maximum of 95° F., has been recorded in every month except July (85° F.) and August (87° F.), while an absolute minimum of from 59° F. to 54° F. has been registered in every month of the year at this station of uniform temperature.

The *rainfall* at Jinja, 48.54 in., is somewhat less, 82 per cent., than that of Entebbe, but is equal to that of other places on the north and north-east shores of the lake, such as Kisumu and Port Florence. The fluctuations in the rainfall during the period 1909–16 varied between -14 per cent. and $+14$ per cent. of the normal, but averaged less than 5 per cent. per annum :

	1916	1915.	1914.	1913.
Difference, per cent., from the normal	+ 5	+ 2	+ 12	- 14
	1912.	1911.	1910.	1909.
Difference, per cent., from the normal	- 2	+ 3	+ 3	+ 14

The maximum rainfall occurs in April, March, and May, when, on an average, 17.47 in. of rain falls, then follow two months, June and July, in the course of which an aggregate of 5 in. of rain may be expected ; in August the rainfall shows a distinct increase, and averages 4.22 in., which increase is practically maintained until the close of the year, when there is a drop from 4.32 in. in December to 2.57 in. and 2.77 in. respectively in January and February. It will thus be seen that the dry seasons are only dry in comparison with the wet seasons preceding and following them, the driest season having a mean fall of $2\frac{1}{2}$ in., while the mean for the early rain season is nearly 6 in., and for the second rainy season 4 in. per month. The fluctuation in the amount of rain falling in each month is very considerable, and, thus, in the period 1904–16 the rainfall in March has varied between $+113$ per cent. of the monthly normal of 4.74 in. and -95 per cent.

DIFFERENCE, PER CENT., BETWEEN MAXIMUM AND MINIMUM RAINFALL
AND NORMAL MONTHLY FALL DURING THE PERIOD 1904-16

			<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Maximum	.	.	+ 80	+ 128	+ 113	+ 40	+ 75	+ 100
Minimum	.	.	- 76	- 83	- 95	- 50	- 70	- 81

			<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
Maximum	.	.	+ 80	+ 85	+ 108	+ 42	+ 127	+ 134
Minimum	.	.	- 84	- 66	- 78	- 45	- 78	- 73

The density of the rainfall varies between 0·64 in. in April and 0·26 in. in June, the mean of the year being 0·4 in. In September, October, and November, it will be noted, the density is the same, 0·37 in. :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
	in.	in.	in.	in.	in.	in.
Density	0·41	0·38	0·45	0·64	0·43	0·26
Mean number of rain days	6·2	7·2	10·6	15·9	14·9	8·9
Maximum number of rain days	11	16	20	21	20	14
Minimum number of rain days	2	2	3	10	8	4

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
	in.	in.	in.	in.	in.	in.	in.
Density	0·46	0·43	0·37	0·37	0·37	0·45	0·4
Mean number of rain days	5·8	9·8	10·2	10·7	12·0	9·5	121·7
Maximum number of rain days	10	15	17	15	19	21	—
Minimum number of rain days	3	4	4	5	4	4	—

The *cloud* values at Jinja are less than at either Entebbe or Mbale, the mean of the year being 3·8, the month of maximum cloud, April (5·4), and of minimum cloud, January (2·4).

The *wind* at Jinja usually arrives from the west or from the south. East winds are rare and northerly winds seldom observed. There is very little variation in the direction of the wind throughout the year : at any season about one-half of the observations will record winds in the western quadrant, one-third from the south quadrant, and the remaining one-sixth are divided between the east and north winds and calms. The mean strength of the winds is, Beaufort scale, 2·0, the maximum strength of 2·2 occurring in August, and the minimum, 1·8, in October.

WIND IN QUADRANTS, PERCENTAGE OF OBSERVATIONS

	N.	E.	S.	W.	C.
Dec., Jan., Feb. . . .	2.8	19.1	32.2	44.6	1.3
Mar., April, May . . .	2.0	7.5	36.0	53.7	0.8
June, July, Aug. . . .	2.1	10.0	28.3	53.8	5.8
Sept., Oct., Nov. . . .	2.6	8.5	29.6	48.7	10.6
<i>Mean</i>	2.4	11.3	31.5	50.2	4.6

Entebbe

Lat. $0^{\circ} 4\frac{1}{2}'$ N. ; Long. $32^{\circ} 28\frac{1}{2}'$ E. ; Alt. 3,842 ft.

The mean *temperature* of Entebbe, which coincides with the yearly mean of Cairo, and is considerably less than the mean temperature of the West or East Indies, ranges between 72.1° F. in February and 68.8° F. in July, the mean for the year being 70.7° F. The mean daily maximum temperature, 78.5° F., is slightly lower than at the stations farther west, and the mean daily minimum considerably higher, the temperature being much more equable. The highest temperature recorded, 89° F. in December 1913, coincides with Fort Portal's absolute minimum, but the lowest recorded temperature, 55° F., about the mean temperature of a London May day, is fifteen degrees higher than the lowest temperature recorded at the western station.

The *rainfall* at Entebbe falls irregularly from month to month : in the early wet season, March to May, the monthly average rainfall amounts to 14 per cent. of the year's aggregate ; the following five months average less than half that amount, 6 per cent. ; in November and December the average rainfall in each month is 9 per cent. of the year's aggregate, while the opening months of the year, which with July and August are the driest in the twelve months, the average is about 5 per cent. Thus 24.47 in., or 41 per cent., fall from March to May, 10.87 in., or 18 per cent., from June to August, while the remaining two quarters, September to November and December to February, account for 11.85 in. and 11.77 in., or 20 per cent. of the aggregate fall respectively. The mean annual fluctuation in the rainfall at Entebbe amounts to about

9½ per cent., and ranges from +28 per cent. of the normal in 1912 to -12 per cent. in 1908 during the period 1907-16, while in 1901 the rainfall of 47 in., the lowest recorded for a complete year, was but 80 per cent. of the normal :

	1916.	1915.	1914.	1913.	1912.
Difference, per cent., of actual rainfall from the normal . . .	-8	+18	+1	-4	+28
	1911.	1910.	1909.	1908.	1907.
Difference, per cent., of actual rainfall from the normal . . .	-10	+6	-6	-12	-1

Over 5 in. of rain has fallen at Entebbe in every month of the year at some period during the 21 years 1896-1916 under review, and in five months from 10 in. to 15·8 in. have been recorded. On the other hand only three months of the year have failed to record less than 1 in. of rain, namely April, that in the period mentioned never received less than 5·43 in., May, that had a minimum rainfall of 2·7 in. in 1900, and December, that recorded a minimum of 1·63 in. in 1898. The maximum fall in twenty-four hours during the period 1904-13 was 3·81 in., in November 1912, but every month of the year has experienced a deluge of 2 in. or more in a day, and three a downpour of over 3½ in. The mean density of the rainfall at Entebbe is 0·43 in., and is greatest in April and December and least in October and January ; as the density of the rainfall at Kew is 0·14 in., it follows that the average day's rain at the equatorial station is three times that of London :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	
Percentage of total rainfall	5	6	10½	17	14	8	
Density of fall, inches .	0·35	0·38	0·40	0·51	0·47	0·43	
	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Percentage of total rainfall	5	5	5	6	9	9½	100
Density of fall, inches .	0·39	0·39	0·37	0·33	0·40	0·50	0·43

The average number of rain days at this station is 138·8, or about 81 per cent. of the average for Kew, and of these 20 per cent. occur from December to February, 36 per cent. from March to May, 21 per cent. from June to August, and 23 per cent. from September to November. The fluctuation

in the number of rain days per annum is from + 24 per cent. of the normal to - 19 per cent.

Cloud values at Entebbe are taken twice a day, at 7 and 14 hrs., and from the data available it is found that the afternoons are slightly more cloudy than the mornings, the morning value being 4·7 and the afternoon 5·1. The most cloudy month is August, 5·4, and the least cloudy December, 4·4. The fluctuations in the cloud values are remarkable: for example, the mean cloud value for the month of December 1908 was 7·4 at 7 hr., whereas in 1913 for the same hour of observation the mean was no more than 2·4. The difference in the cloud values for each season at each hour of observation is as follows:

	Dec.-Feb.	Mar.-May.	June-Aug.	Sept.-Nov.	Year.
7 hr. .	4·3	4·9	4·9	4·7	4·7
14 hr. .	4·9	5·1	5·3	5·0	5·1

The mean daily amount of *sunshine* recorded at this station is 5 hrs. 44 min., which is rather less than half-way between the corresponding data for Fort Portal and Bukoba, a station on the west coast of Lake Victoria but about 100 miles to the south-west. The month of maximum sunshine is January with a mean of 6 hrs. 33 min. daily, while the least sunshine measured is, as a rule, in the rainy month of April, when the mean is rather under four and a half hours.

The seasonal *wind* directions at Entebbe do not show much variety, as the breeze, such as it is, is usually confined to the quarter south to west, and the amount of variation is distinctly small. The diurnal changes, however, are very marked: at 7 hr. half the wind observations record a calm, and of the remaining 50 per cent. from 34 to 40 per cent. are winds from the south and west. By 14 hr. the winds have increased in strength, only 10 per cent. of the observations record calms, while about 78 per cent. of the wind observations now proceed from a south-easterly direction. At 21 hr. the wind dies away, 80 per cent. of the observations record calms, and of the remaining 20 per cent. 18·7 per cent. are winds either from the south or west quadrants. The mean wind velocity varies between 2·4 miles per hour at the 7 and 21 hr.

observation, and 2·7 miles per hour at 14 hr., the mean average being 2·5 miles per hour, or slightly over Beaufort scale 1. It will be gathered from this statement that winds of gale strength are very infrequently recorded at hours of observation at Entebbe, while winds of strength 4 are by no means numerous. Analysis of winds of over strength 4 shows that out of every 100 observations taken at 7 hr., only 8·7 record winds of this strength; at 14 hr. the average reaches 24 per cent., but by 21 hr. it has fallen to 4·5. It will be seen from the following statement that there is very little seasonal variation in the number of strong winds, but the season from September to November shows a slightly larger total of these winds over the remaining periods of the year :

NUMBER OF WINDS OF STRENGTH 4 OR MORE FOR 100 OBSERVATIONS
AT EACH HOUR OF OBSERVATION

	7 hr. Strength.			14 hr. Strength.			21 hr. Strength.		
	4·5	6·7	8·12	4·5	6·7	8·12	4·5	6·7	8·12
Dec., Jan., Feb.	6	1·5	0	20	3	0·5	2·5	0·5	0
Mar., April, May	6·8	1·8	0	16·5	5·8	0·7	1·2	0·8	0
June, July, Aug.	6·7	1·2	0·3	17	6·7	0·5	2·7	0·5	0
Sept., Oct., Nov.	8·2	1·8	0·2	18	6·2	0·7	4·2	1·3	0
Mean	7	1·6	0·1	18	5·4	0·6	3·5	1·0	0

Travellers to Uganda write about ' the appalling wind which precedes the crash of ' thunderstorms, of which ' at places like Entebbe there must be nearly 200 . . . in the year ' . The *thunderstorms* officially recorded at Entebbe average 24 per annum, a number that is in all probability much below the actual figure, while the winds of *gale* force recorded at hours of observation are singularly few. Thus in the course of seven years at 7 hr. one gale from the east was recorded in July, one from the south in August, and one from the south-west in September; at 14 hr. the gales were more frequent and numbered fifteen, namely, a south-westerly gale in January, a gale from the east and another from the west in February, an easterly gale in March, a westerly gale in April, one gale from the west and one from the south-west in May, a south-westerly gale in June, a south-easterly gale in July, a gale

from the south in August, three gales from the west in September, and two from the south-west in October. No gales were recorded at the 21 hr. observations in the course of seven years.

The direction of the 'strong' winds (4 outwards) in January was chiefly from south to west; in February east or west; in March south-west, east, or west; in April west and at mid-day north; in May north; in June south to west; in July east; and from August to the end of the year south to west, with, at 7 hr., the north wind fairly prominent.

Kampala

Lat. $0^{\circ} 19' N.$; Long. $32^{\circ} 35' E.$; Alt. 3,905 ft.

The climate of Kampala, which lies about 20 miles to the NNE. of Entebbe, is that of Jinja, the mean temperature of both places being practically the same and slightly higher than at Entebbe. The most striking difference in the *temperatures* of Entebbe and Kampala is found when comparison is made between the mean monthly maxima, which show that the mean monthly maximum at Kampala is, on an average, $4.6^{\circ} F.$ higher than at Entebbe from September to February, $6.8^{\circ} F.$ higher during March, April, and May, and as much as $8.4^{\circ} F.$ higher for the period June to August. No such marked difference is observed in respect to the mean monthly minimum, which is practically the same at both places, the average fluctuation per month being less than one degree: the mean monthly minimum for the year being $0.5^{\circ} F.$ higher at Entebbe. The highest temperature recorded at Kampala, $104^{\circ} F.$ (September, 1908), is $15^{\circ} F.$ higher than the hottest temperature registered at Entebbe, and whereas in every month, saving August ($89^{\circ} F.$), a temperature of $90^{\circ} F.$ or more has been experienced at Kampala, the temperature at Entebbe has never reached that figure.

The *rainfall* at Kampala, 50.4 in., is about 85 per cent. that of Entebbe, and about 4 per cent. higher than at Jinja. The percentage of the rainfall precipitated in each month is very much the same as at Entebbe, except for the August

rainfall, which is high, whereas at Entebbe it is low, and the December rainfall, which is below the average at Kampala and above it at Entebbe. The mean number of rain days at Kampala is greatly in excess of the means for Entebbe and Jinja, and the density of the rainfall is considerably less, the highest density, 0.41 in. in August, being less than the mean of the year at the first-mentioned place :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Percentage of total rainfall	4.5	5.5	12.0	14.0	10.5	7.5
Density of fall	0.32	0.32	0.37	0.37	0.30	0.27

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Percentage of total rainfall	4.0	9.5	7.5	7.5	10.5	7.0	100
Density of fall	0.25	0.41	0.30	0.24	0.29	0.27	0.31

Masaka

Lat. $0^{\circ} 21' S.$; Long. $31^{\circ} 47' E.$; Alt. 4,200 ft. (?)

Masaka, which is situated a few miles from the west coast of Lake Victoria Nyanza, and at some 500 ft. higher altitude, has a mean *temperature* of $68.9^{\circ} F.$ and a climate so equable, that the month of highest mean, February $70^{\circ} F.$, is only $1.1^{\circ} F.$ higher than the mean of the year, while the months with the lowest mean temperature, $68.1^{\circ} F.$, June and December, differ from the mean of the year by less than 1° . The mean daily maximum temperature differs but a little from the Entebbe record, but there is a considerable difference between the mean daily minimum temperature of the two places, that of Masaka being, as a rule, about $3^{\circ} F.$ less than that of Entebbe. The highest temperature recorded at Masaka, $87^{\circ} F.$, has been experienced in each of the first three months of the year, while the lowest temperature, $48^{\circ} F.$, has been recorded in each of the months October and November. How little the mean temperature varies from year to year can be gathered from the following statement showing the amount of fluctuation from the normal of $68.9^{\circ} F.$ for the period 1907-16 :

<i>1907.</i>	<i>1908.</i>	<i>1909.</i>	<i>1910.</i>	<i>1911.</i>	<i>1912.</i>	<i>1913.</i>	<i>1914.</i>	<i>1915.</i>	<i>1916.</i>
$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$	$^{\circ} F.$
+ 0.6	- 0.5	- 0.1	+ 1.8	+ 1.5	+ 1.3	- 1.8	- 1.3	- 0.2	- 0.1

The mean fluctuation, it will be noted, is less than 1° F. per annum.

The rainfall at Masaka shows a very remarkable fluctuation from the normal from year to year, amounting on an average to about 25 per cent. per annum. Another peculiarity of the rainfall at this station lies in the fact that during the period 1904–16 there were seven consecutive years having a rainfall greater than the normal, which were followed by six years in succession with a rainfall that fell more or less short of the mean of 39·88 in., a phenomenon not noticed elsewhere in the district :

	1916.	1915.	1914.	1913.	1912.	1911.	1910.
Difference, per cent., from the normal rainfall .	— 41	— 34	— 18	— 37	— 24	— 13	+ 9
	1909.	1908.	1907.	1906.	1905.	1904.	
Difference, per cent., from the normal rainfall .	. + 15	+ 19	+ 35	+ 47	+ 10	+ 25	

For the six years 1911–16 the mean annual average was 29 in. (for the seven previous years it was 49 in.), or 2 in. per annum more than that at Shirati on the east side of the lake. The percentage of the total rainfall falling in each month coincides for the most part with the Entebbe rainfall, apart from the June and July percentages, which are much lower at Masaka. There are fewer rain days at Masaka (121 per annum) than at Entebbe, but the volume of rain precipitated in the year is also much less ; the mean density of the fall is smaller in every month of the year, and is more akin to that of Kampala than Entebbe :

				<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	
Percentage of total rainfall falling in each month				4·5	5·5	9·0	18·0	17·0	4·5	
Density of fall				0·25	0·27	0·33	0·42	0·43	0·27	
				<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Percentage of total rainfall falling in each month		3·0		5·0	6·5	8·5	9·5	9·0		100
Density of fall		0·29		0·25	0·33	0·31	0·27	0·32		0·33

The first two months of the year are distinctly dry, in eight out of thirteen years less than 2 in. of rain were registered per month ; March may be relied upon for an average fall,

April and May each record twice as much rain as the average month ; there is a sudden drop in the rainfall in June to about half the average monthly fall, and this absence of precipitation is emphasized in July. In August the rain is still deficient, but the July rain days have been doubled in number ; September experiences a rainfall not far short of the average, which is attained in October, while November and December have average rainfalls above the monthly mean for the year. The number of rain days at Masaka average 121, but in place of an average fluctuation of 25 per cent., as in the case of the amount of rain precipitated, the mean variation from the normal does not exceed 12 per cent., showing that the density of the rainfall must vary considerably each year. As a matter of fact the mean density of the year 1907 was as high as 0.56 in., while in 1912 it was as low as 0.22 in., as the following statement indicates :

	1916.	1915.	1914.	1913.	1912.	1911.	1910.
Mean density of rainfall in inches	0.23	0.28	0.27	0.23	0.216	0.27	0.35
	1909.	1908.	1907.	1906	1905.	1904.	
Mean density of rainfall in inches	0.37	0.44	0.56	0.48	0.32	0.30	

Unlike as at Entebbe, where the amount of *cloud* in the afternoon exceeds the cloud value of the morning observation, at Masaka the morning cloud values are considerably greater than at any other time of the day. For example, if 100 represents the morning cloud value, the afternoon and evening values would be set down at 84 and 43 respectively : in the winter months (December to February) the values would be 100, 70, and 40 ; from March to May, 100, 85, and 41 ; from June to August, 100, 90, and 48, and in the autumn 100, 90, and 46. The months of greatest cloud are the rainy months of April, May, and November, and of least cloud January. There is no considerable variation in the amount of *sunshine* recorded each season at Masaka : the average duration per diem being 7 hrs. 25 min. from December to February, 34 min. less from March to May, a minute more from June to August, and 23 min. more from September to November. The months

of maximum sunshine are June with 8 hr. 8 min. per diem, and September with 8 hr. 3 min., and of least sunshine May with a mean of 6 hr. 23 min. In July and September 1907 the sun was shining on an average for 10 hr. each day throughout the month ; while in August 1904 the average duration of sunshine was less than 5 hr. a day.

The *winds* at Masaka resolve themselves, so far as frequency is concerned, into a duel for supremacy between the east and south winds, with the east wind, though hard pressed from March to May, the victor in every quarter of the year. From December to February half the winds that blow have their origin in the east quadrant, a quarter comes from the south quadrant, and the balance is fairly evenly divided between the west and north quadrants. From March to May the easterly winds become less strong, the north winds are of rare occurrence, the south winds are greatly augmented, and the west winds deviate but little from their yearly mean of 12 per cent. During the dry season from June to August the east winds increase in frequency at the expense of the south winds, and in the autumn the north and west quadrants furnish an increased proportion of winds, southerly winds falling away while easterly winds furnish 53 per cent. of the winds recorded at hours of observation :

PERCENTAGE OF OBSERVATIONS

	<i>N.</i>	<i>E.</i>	<i>S.</i>	<i>W.</i>	<i>C.</i>
Dec., Jan., Feb.	10	51·5	25	13	0·5
Mar., April, May	4	46	40	10	0
June, July, Aug.	5	52	34	9	0
Sept., Oct., Nov.	10	53	22	15	0
<i>Mean</i>	7	51	30	12	0

The mean wind strength at Masaka is extremely low, the yearly average being no more than 1·85 (Beaufort scale). The afternoon winds are slightly stronger than the morning at all seasons of the year, and the morning winds are stronger than the evening, the respective means being, morning 1·8, afternoon 2·1, evening 1·65. From March to May the winds are at their greatest strength, the mean of the day being 2·1 ;

from June to November they are least strong, 1·7 ; while from December to February their strength, 1·9, is intermediate between the highest and lowest. With regard to winds of strength 4 or more it is found that at 7 hr. only 3·8 per 100 observations exceed strength 3 on the Beaufort scale, at 14 hr. almost 10 per cent. of the winds (9·5 per 100) are of strength 4 or more, but at 21 hr. only 2·5 per 100 attain a velocity of 15 miles an hour. From December to February the morning strong wind is from the east ; at 14 hr. the south winds of strength 4 or more are in the ascendant, while in the evening the north wind is the prevalent strong wind. The same conditions obtain from March to May, with the south winds more numerous than they were in the morning, and the north strong wind almost non-existent in the evening. The south wind from June to August is in the ascendancy at all times of the day, while from September to November the wind of greatest strength in the morning and evening arrives from the north, but in the afternoon from the south or east.

WINDS OF STRENGTH 4 OR MORE PER 100 OBSERVATIONS AT EACH HOUR OF OBSERVATION

	7 hr.				14 hr.				21 hr.			
	N.	E.	S.	W.	N.	E.	S.	W.	N.	E.	S.	W.
Dec.-Feb.	0·8	2·7	1·8	0·5	0·6	4·1	6·6	1·2	2·1	0·6	1·8	1·1
Mar.-May	0·3	3·7	3·0	0·8	0·0	5·3	5·9	0·3	0·2	0·6	1·6	0·5
June-Aug.	0·0	0·4	0·4	0·0	0·0	1·1	5·2	0·0	0·2	0·0	0·4	0·0
Sept.-Nov.	0·6	0·3	0·0	0·5	0·0	2·5	5·0	0·1	0·5	0·0	0·4	0·0

Bukoba

Lat. 1° 20' S. ; Long. 31° 51' E. ; Alt. 3,723 ft.

The climatological data available for Sango Bay, lat. 0·52° S., long. 31° 42' E., the southernmost meteorological station in the Protectorate, is so fragmentary that recourse has been made to the data collected for a number of years at Bukoba, a station about 30 miles south of Sango Bay and about 95 miles south of the Equator, for the purpose of arriving at the climate of this district. The highest mean *temperature* at Bukoba, 70·5° F., occurs in March, after which date the temperature

recedes by gradual decrements until the lowest mean temperature is attained in August; in September the temperature rises to 69.3° F., and remains more or less constant for the following two months, and then falls in December to 68.9° F., after which it again rises to its maximum by modest increments. The difference between the months of highest and lowest mean temperature is only 2.5° F. The mean daily maximum temperature, saving that the highest mean, 79.5° F., is attained in October in place of February, is very similar to the data obtained for Entebbe, but the mean daily minimum is 1.2° F. lower at Bukoba, the yearly mean minimum at this station being 61.8° F. The mean monthly maxima and minima at Bukoba and Entebbe show remarkable agreement, but the absolute maxima are generally higher at the former station, while the absolute minima are considerably lower for every month of the year. With respect to this latter phenomenon it should be explained that the minima readings at Bukoba in 1906 were extraordinarily low throughout the year; if the results recorded for this year were deleted the Bukoba minima would still be lower than those of Entebbe, but in place of averaging 7° F. less their average would be reduced to 3° F. lower.

The mean *rainfall* at Bukoba reaches the high average of 75 in. per annum, an amount greatly in excess of that of any other lake station, whether the same be situated on the north coast, as, for example, Entebbe 59 in., east coast (Shirati 27 in.), or at the south of the lake (Neuwied 55 in., Mvansa 44 in., Pambarri $22\frac{1}{2}$ in.). The first two months of the year are comparatively dry for Bukoba, the average rainfall being just about double the amount expected at Kew in July or August. In March the 'wet' season begins in earnest, and the average monthly fall exceeds in volume the amount that is expected in four average months at London. April, with a mean density of rainfall of 0.8 in. and an aggregate of 16.7 in., experiences a veritable deluge, which is fairly well maintained throughout May. June and July are dry (they average 1.5 in. a month), while August, September, and October are com-

paratively dry for Bukoba, though for many places an average of 3·5 in. of rain per month would appear inordinately wet. A secondary rainy season occurs in November and December in the course of which nearly 16 in. of rain are deposited. The density of the fall, it will be gathered from the fact that the quantity precipitated is three times as much as at Kew and the number of rain days (138) is but 80 per cent. of the Kew mean, is extremely high, the average rain day producing over half an inch, a fall that is annually expected on two or three days only at Kew. The April shower at Bukoba, as already noted, is represented on an average by 0·8 in. of rain, in May the density is 0·77 in., and in June 0·58 in. ; the July rain day furnishes the smallest rainfall but averages about one-third of an inch :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Percentage of total fall .	5·5	6·5	11·5	22·5	15·5	2·5
Density of fall per rain day .	0·47	0·54	0·54	0·80	0·77	0·58

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Percentage of total fall .	2·0	4·0	4·0	5·0	11·5	9·5	100
Density of fall per rain day	0·32	0·41	0·39	0·41	0·50	0·51	0·54

From March to May rain falls on six days in ten, during the next three months on three days in twenty, from September to November on two days in five, and from December to February on practically one day in three. *Thunderstorms* at Bukoba are very prevalent, and average 95 per annum. Of this total one-third occur from September to November, and one-third from March to May ; the remainder are unequally distributed among the remaining six months, the period December to February having an average of 21, and that from June to August 13. The number of thunderstorms per annum fluctuates considerably : the minimum recorded for a complete year being 76 per cent. of the normal, and the maximum 65 per cent. more than the normal. The highest and lowest aggregate for four periods of the year are as follows :

	<i>Dec.-Feb.</i>	<i>Mar.-May.</i>	<i>June-Aug.</i>	<i>Sept.-Nov.</i>	<i>Year.</i>
Maximum .	32	55	30	46	157
Minimum .	14	39	11	11	72

The mean *relative humidity* at Bukoba (mean of the day) is 80 per cent. (Kew 76 per cent.), the month of greatest humidity being April, 89 per cent., and of least humidity July, 71 per cent. (at Kew the mean is 85 per cent. in November and December, and 67 per cent. in June and July). In April the 7 hr. mean is as high as 93 per cent. at Bukoba, and the 14 hr. mean 11 per cent. less; in July the mean at 7 hr. is 73 per cent., and at 14 hr. 59 per cent. The highest mean at 7 hr. at Kew is 91 per cent., the figures for November, the 14 hr. mean being 18 per cent. less; the lowest mean at 7 hr. is 80 per cent. for June and at 14 hr. 59 per cent. for July.

The direction of the *winds* at Bukoba bears a general resemblance to those of Masaka, but at the former station calms occur with far greater frequency than at the more northern and more elevated town. From December to February the predominant easterly wind is unapproached in frequency by winds from any other quadrant, but from May to August winds from the south quadrant are almost as numerous. The north and west winds make themselves felt in the autumn, but the east quadrant furnishes as many winds as any two of the remaining quadrants :

PERCENTAGE OF WIND

	N.	E.	S.	W.	C.
Dec., Jan., Feb. .	11·5	32·5	18	17	21
Mar., April, May .	7	32·5	30·5	13	17
June, July, Aug. .	6·5	37	30	6·5	20
Sept., Oct., Nov. .	15·5	32·5	15	17	20
Year	10	34	23·5	13	19·5

The diurnal variations in the wind are strongly marked. From December to February the morning wind blows from the south or east quarter in fairly equal proportions, but by 14 hr. easterly winds are recorded for 58 per cent. of the observations, and from the south for 15 per cent. only; in the evening rather over a third of the observations record a calm, while of the balance the west wind predominates. South winds (41 per cent.) are in the ascendant at 7 hr.

from March to August, but by 14 hr. the east wind is blowing on six days out of ten, and in the evening calms are very prevalent in four out of ten, with a southerly zephyr on three out of ten days. During the autumnal months the east wind predominates both at 7 hr. and 14 hr., while in the evening the west wind blows on three days out of ten, calms prevail on three more, breezes come from the north on two, and on the remaining evening an easterly wind occurs. Taking the year as a whole the condition of the wind can be determined from the following statement :

PERCENTAGE OF WIND

			N.	E.	S.	W.	C.
At 7 hr.	.	.	9.5	28	33	11.5	18
14 hr.	.	.	10	60.5	20	5.5	4
21 hr.	.	.	10	34	23	13.5	19.5

Wind strength at Bukoba averages 2.3, Beaufort scale ; the months of greatest wind strength, as at Masaka, are February and March, while September is the month of least movement.

CHAPTER V

VEGETATION

General Survey—Steppe—Savannah—Forests—Alpine vegetation.

GENERAL SURVEY

THE vegetation of Uganda ranges from the sparse desert flora of Rudolf province to equatorial forests of the Congo type ; and includes, on the highlands of Elgon and Ruwenzori, an Alpine zone of peculiar interest. Its character is determined as much by altitude as by moisture, and the limits of the various plant associations are usually marked by changes of level. As a whole this flora is East African, with many Abyssinian forms ; but it shows strong West African affinities, especially in the forest belt, and some slight traces of South African influence. Apart from the timber trees, the principal wild plants of economic importance are the rubber trees and vines, the wild coffee (*Coffea robusta*), and chilli. These are treated in Chapter IX, Resources.

The principal associations fall into four groups : (1) In the arid steppe country below 3,000 ft. in altitude, to the north and north-east of the Protectorate, the vegetation is thoroughly East African, having in the drier parts of Rudolf province many affinities with Somaliland. Short harsh grass and thorn bush, with scattered euphorbia and acacia trees, predominate. This zone lies mostly north of 2° N. lat.

(2) Central and southern Uganda, from 3,500 to 6,000 ft. above the sea, is a rolling savannah country with abundant vegetation of the Central African type. The greater part consists of rich grasslands dotted with clumps of trees and shrubs, and traversed by swampy valleys which are often bordered by dense gallery forest. It comprises the southern

half of eastern province, the whole of Bunyoro, Buganda, and Toro, and most of Ankole. The soil is fertile. Large areas are covered with the tall elephant grass which is characteristic of the country.

(3) Scattered through the savannah zone, especially in the west and south, are patches of equatorial forest of the West African type. These are outliers of the great Congo forest which bounds Uganda to the west, and doubtless the last remains of a mantle which once covered the whole country. These forests, containing valuable timber trees, are an important source of wealth. They lie chiefly round the north and west shores of Lake Victoria, and in west Bunyoro, Toro, and Ankole.

(4) In the mountains above 7,000 ft., and ascending on Ruwenzori and Elgon to 14,000–15,000 ft., is a highland flora of great interest, recalling on the lower slopes the temperate vegetation of South Africa and the Abyssinian tableland, and having in the higher zones an Alpine character. These mountain massifs, Elgon on the eastern and Ruwenzori on the western boundary of the Protectorate, separated by a wide expanse of tropical wood and savannah, give to the flora of Uganda its most original characteristic.

STEPPE

The steppe region of Uganda, continuous on the east with the nyika of British East Africa, extends across the north of the Protectorate from Lake Rudolf to the Nile valley. A similar patch of arid country occurs in south-east Ankole. The steppe lies for the most part less than 3,000 ft. above the sea, and is characterized by poor, shallow soil, and insufficient rainfall, often enduring spells of severe drought. In the north, the dry season is longest, rainfall lowest, and soil least productive in the east, gradually improving to the westward. The principal plant-forms are coarse but not luxuriant grass, and thorny scrub. There are no large timber trees. In many parts of Rudolf province, especially the Turkana, the conditions are almost Saharan. The rainfall, seldom reaching

10 in. yearly, often fails entirely for several successive years. There are large tracts of gravel and stones entirely bare of vegetation. Elsewhere thorn bush, mostly the prickly 'wait-a-bit' (*Acacia mellifera*), with its spreading branches and hooked thorns, *Sansevieria*, *Commiphora*, and other xerophytes, is sparsely distributed over the stony soil. The grass is short, harsh, and poor. It withers in the dry season, but grows luxuriantly during the short rains. The flora as a whole is almost identical with that of Somaliland, with a few Abyssinian and Saharan types. Only the banks of the permanent streams, especially those entering Lake Rudolf from the west, support a more genial vegetation. This includes the wild date (*Phoenix reclinata*), Palmyra palm (*Borassus flabelliter*, var. *aethiopum*), dom palm (*Hyphaene thebaica*), fig, and tall acacias (*A. verrugosa* and *A. fistula*), which form considerable woods near water.

In northern and eastern provinces, especially Chua and Acholi, the steppe is an open undulating plain of wiry grass with scattered thorn bush but few trees, and is much used for grazing. The rocky hills which interrupt its surface are almost bare. This type of vegetation, characteristically East African, ranges south of the Jiwe hills and west to 33° 30' E. long., where it gradually merges in the richer long-grassed country of the Nile basin. In West Nile district the mountains standing up from the steppe are well wooded to an altitude of 6,000 ft., and many are covered with bamboo. The Acholi country is a vast and almost treeless plain ascending to 4,000 ft., and covered with wiry grass (*Andropogon filipendulus*) and scattered bush. The common tree of the southern steppe, from the Victoria Nile to 3° N. lat. is the sausage-tree (*Kigelia aethiopica*), giving dense and welcome shade. On the backlands a few miles north of the river, the flora contains several Sudan elements, such as the trees *Prosopis oblonga*, *Azelia africana*, and *Tetrapleura nilotica*. Near Fatiko terminalias (*T. macroptera*, *T. Spekei*, and *T. Dawei*) give a special character to the landscape; and thence to Nimule the principal trees are the Shea butter tree (*Butyrospermum*

Parkii) and Sycamore fig (*Ficus sycomorus*) both conspicuous members of the Nilotic flora.

The Chiope district of Bunyoro, immediately south of the Victoria Nile, is transitional between the true steppe and the savannah. It is covered by a dense bush having many Sudanese affinities and including *Balanites aegyptiaca* (the Arab heglig), a spiny tree with edible fruit; the tamarind (*Tamarindus indicus*), and Sycamore fig, and *Sterculia cinerea*, *Sarcocephalus Russeggeri*, and *Protea madiensis*, which all occur in Bahr el-Ghazal province.

SAVANNAH

The Savannah zone ranges from 3,500 to 6,000 ft. above sea level, at which altitude its two most characteristic plant-forms, the elephant grass and banana groves, cease. These savannahs consist of rolling downs of rich soil, clothed with luxuriant grass, dotted with clumps of trees, and intersected by swampy valleys, which are often bordered by gallery forest, containing acacia raffia palm, wild date, and timber trees. They cover the whole of Buganda, most of Bunyoro and western province, and the south part of eastern province below 2° N. lat. with the exception of the forest belts (see below), and comprise all the best areas of cultivation. The grasslands are of two sorts: the elephant-grass country, which includes about half of Buganda, Bunyoro, and Toro, and the high plains covered with short fodder grass, found chiefly in central Buganda (Singo, Bwekula, and Bugangadzi), Buyaga, Teso, Bukedi, east and central Toro, north Ankole, and Kigezi.

Elephant grass or matete (*Pennisetum Benthami*) is the most characteristic plant of the Uganda savannah, covering many square miles with a dense jungle 10 to 15 ft. high. The stalks are as thick as a man's thumb and the leaves broad and sharp-edged, and paths can only be forced through it by great labour. It gives admirable cover to elephant, buffalo, lions, leopards, and wart hogs, but harbours no other game, and is useless for fodder. It only grows on rich loamy soil, and land from which it is cleared makes excellent arable.

The shorter grasslands vary considerably in richness. The best are covered by a close luxuriant growth about 3 ft. high, consisting chiefly of lusenke (*Imperata arundinacea lyr*), and abounding in brilliantly-coloured wild flowers, including sun-flowers, orchids, and coreopsis, and dotted with clumps of trees and flowering shrubs. These park-like prairies are found chiefly in the loftier parts of central Buganda, eastern and central Toro, and east and north Ankole. Patches also occur on the plateau of eastern Bunyoro, though this is chiefly covered with elephant grass. Among the trees which stud them and often border the roads, are figs, the massive incense-tree (*Canarium Schweinfurthii*), nsambya (*Dolichandore platycalyx*), *Cordia abyssinica*, and *Vitex Cienkowski*; the beautiful ekirikiti (*Erythrina tomentosa*) with its grey-green branches and immense crimson blossoms, the 'flame of the forest' (*Spathodea nilotica*), and mauve-flowered *Acanthus arboreus*, are among the most characteristic flowering trees. On poorer dryer soil, as in north-east Ankole, the place of these is taken by *acacia* and *terminalia*. In central Ankole, the hill-savannah is almost destitute of trees and shrubs, and fuel must often be fetched from the lower ground. Open woods of *acacia* and *Candelabra euphorbia* grow in the wide valleys between the hills, and stud the low grass plains east of Lakes Edward and George. West of Lake George their place is taken by Palmyra palm, which is only found at low levels. The highlands surrounding the crater lakes east of Lake Edward consist of short grass pasture broken by clumps of bracken and bramble and powdered with wild flowers, curiously resembling the landscapes of the temperate zone. To south and south-east are steep grassy hills, continuous with the rolling grass plains of Kigezi, which rise in the Rusumburu district to 5,000 ft. above the sea, and are dotted with clumps of thorn bush and traversed by forest-bordered streams. East Ankole, on the borders of Buddu, is a rainy land of ranker vegetation; the plains being covered with thick bush and elephant grass, and separated by papyrus swamps.

Savannah covers much of the central part of eastern

province, increasing in richness from north to south. The uncultivated part of Teso is a grazing country of thin bush, growing on low ridges, and divided by swamps. There are few large trees and no elephant grass. In Lango, to the west, the spear grass grows 6 ft. high, and is burnt off in the dry season (December to March). The plains of Bukedi, between Elgon and Lake Kioga, consist mostly of rich grass and arable, with huge swamps in the western part. There are patches of dense woodland in Bunyuli and Bugwerere, but the greater part is open or lightly bushed.

The great marshes lying round Lakes Kioga and Kwania, the swamps which fill the depressions of the savannah country, and the creeks and inlets of the lakes, are the home of a swamp vegetation closely related to the *sudd* flora of the Bahr el-Ghazal province. The principal plant is the papyrus (*Cyperus papyrus*) which forms dense jungles often 15 ft. in height. Large masses of pink and lavender *Pentas*, the red-flowered shrub *Dissotis*, the swamp orchis *Lissochilus Horsfallae*, with flower-spikes 6 to 8 ft. high, and its relative *L. ugandae*; ferns, mints, and sages are associated with it. The great reed (*Phragmites communis*) occurs in Bunyoro and on the Nile banks. The ambach (*Herminiera elaphroxylon*), a short leguminous tree with a swollen grey pithy trunk, forms large groves on the edge of Lake Victoria and other places, and the giant bulrush (*Typha angustifolia*) covers several hundred acres at the north end of Lake George. Water-lilies (*Nymphaea*) blue, white, and yellow, and the little cabbage-like *Pistia stratiotis* clothe the surface of the sluggish streams, which are often entirely choked by the mass of plant life.

FORESTS

There is little doubt that the great Congo forest once extended over the larger part of Uganda. Though it has now retreated west of the Albertine depression, large isolated patches remain, scattered mainly through southern and western Uganda between 3,000 and 6,000 ft. above the sea. Bunyoro is the most densely wooded district. The principal forests of

the Protectorate are Mabiwo and Kiagwe in Buganda, Tero in Buddu, Budongo, Bugoma, and Luambabye in Bunyoro, Kibale, Ankole, and Kayonsa in western province. They form two great groups, Budongo and Bugoma, lying on the western slope of the ridge constituting the eastern wall of the Albertine depression, are almost continuous with the forests of Toro and Ankole, and form a belt extending with few breaks to the south-east shore of Lake Edward. Almost continuous forest also borders Lake Victoria, but the sleeping-sickness regulations at present limit its exploitation. There are also several isolated tracts in Busoga and around the foot of Elgon and Ruwenzori; whilst dense gallery-forest lines many of the watercourses and swamps of the savannah zone.

These forests are of the true equatorial type, and contain a considerable proportion of Western African trees, such as the redwood or 'sassy-bark' (*Erythrophlaeum guineense*), West African mahogany (*Khaya senegalensis*), mubula (*Parinari excelsa*), mvule or sroko (*Chlorophora excelsa*), Lagos silk-rubber tree (*Funtumia elastica*), oil palm (*Alaëis guineensis*), screw pine (*Pandanus*), *Parkia filicordia* and *Spathodea companuchatra*. They consist of evergreen timber trees of great size, linked by masses of lianas and clothed in orchids and moss. Economically the most important trees, many of which are new to science and have not yet been found elsewhere, are the muhindi or ironwood, miovu, munyana, and others of the mahogany class, the mvule, nsambya, and musenene (see below, list of timber trees). The majestic raffia palm (*Raphia munbuttorum*), wild banana (*Musa ensete*), and wild date (*Phoenix reclinata*) are generally distributed. The palmyra palm (*Borassus flabellifera*) grows on the lower ground, draecenas and tree-ferns in the upland forests. There is a dense undergrowth of bamboos, palms, ferns, &c.; and on the swampy forest edge the ekirikiti and handsome *Acanthus arboreus* grow in profusion. Among the tree orchids, *Anagraecum infundibulare* and *Dendrobium* sp. are noteworthy. As well as the silk-rubber tree, several species of rubber vine are common. Wild rubber, however, is steadily decreasing

in importance, and the future value of the forests will undoubtedly consist in timber trees.

The constitution of the forests varies with altitude and climate, which range from the hot swampy shores of Lake Victoria to the temperate mountain slopes. Each block has an individual character, given by its peculiar trees, which are not found in abundance elsewhere. Thus on Lake Victoria, mvule, mwafu, and museru predominate east of the Nile, with flat-topped acacia on the backlands. West of the Nile, the chief trees are kpewere, musizi, the incense tree (*Canarium schweinfurthii*), *Pseudospondias microcarpa*, *Parkia filicoidea*, *Pycnanthus schweinfurthii*, and *Antiaris toxicaria*. In south Buddu, where the littoral forest is under water the greater part of the year, the special features are the valuable conifer musenene or yellow wood, mukunyu, *Carapa* sp., *Klaineodoxia* sp., and *Baikoea Eminii*, a tall tree with conspicuous flowers. Isolated woods of *Eugenia owariensis* grow in the swamps.

The most important forests are as follows :

Mabira forest lies in the Kiagwe district, about 40 miles from Kampala and 17 from Jinja. Its area is about 140 square miles ; and it is well stocked with silk-rubber tree (*Funtumia elastica*), and valuable timber, including sesambya, mvule, nsambya, munyama, muhindi, and musizi. It is leased to the Mabira Forest (Uganda) Rubber Co.

Budongo forest lies in Bunyoro, between Lake Albert and the Masindi-Fajao road. Its altitude is about 4,000 ft., and its estimated area 160 square miles, including the tract east of the Fajao road known as Nyamaganga forest, which extends to the Chopi country. Many isolated patches of forest lie outside Budongo. This forest is rich in rubber plants, chiefly *Funtumia elastica*, and the vines *Landolphia Dawei* and *Clitandra orientalis*. Most of them have been tapped at some time, but no systematic tapping is now practised. Budongo contains numerous trees of the mahogany class 80 or 90 ft. high. Muhindi predominates ; magnificent specimens of miovu, munyama, mvule, mutumba, and omu-

vumu are also plentiful. *Pseudocedrella utilis* and *Lovoa budongensis* were first found in Budongo.

Bugoma forest is a large, scattered, and much branched area, estimated at 160 square miles, extending north from the Ngusi river, which is the boundary between Buyaga and Bunyoro, at an average altitude of 2,600 ft. The rubber vines *Clitandra orientalis*, *Landolphia Dawei*, *L. ugandensis*, *L. florida*, and *L. subturbinata* are distributed through it. *Funtumia elastica* is most abundant in the central part, but the trees are small. The most important and valuable timber trees are muhindi and miovu. Mululu, munyama, and mubula are plentiful. Bamboos and rattan-canes abound along the river bank; and *Coffea robusta* is found, but not in sufficient quantities to be commercially profitable.

Tero forest lies in south Buddu, bordering Lake Victoria, at an elevation of about 3,700 ft. The forest has been surveyed and found to have immense possibilities. The total area is estimated at 150 to 200 square miles. Being only a few feet above the lake level, this forest is very swampy; and from April to the end of July the greater part is under water and impassable. The most important tree is the conifer musenene or yellow-wood (*Podocarpus melanjanus* and *P. glaciior*) which grows abundantly. Mubula, mukunyu, and musizi are also prominent species. *Eugenia owariensis* grows in isolated patches in the swamp.

Luambabye forest. This is a comparatively small forest, lying along the banks of the Luambabye river in Bunyoro. There are many good trees, but at present its chief value consists in the wealth of rattan-canes on the river banks.

Kibale forest lies in the Albertine depression between the Buyaga frontier and the north-east end of Lake George. It is traversed by the Mpanga river and its tributary streams, and has an area of at least 230 square miles. Its altitude is about 1,000 ft. lower than that of the Buganda forests, and the vegetation, which has a West African character, includes the *Pasidanus*, or screw pine, the characteristic tree of the West African swamps. The chief trees are mubula, mululu,

nsambya, *Maba abyssinica*, *Toddalia nobilis*, *Symphonia globulifera*, and *Dawea ugandensis*. The palmyra, or fan-palm, grows on the lower ground, but does not ascend beyond 3,000 ft. *Mimusops voroensis*, *Balanites Wilsoniana*, *Lovoa brachysiphon*, and *Dactylopetalum ugandense* are among the new species first found in this forest. In the lower ground to the south-west is a wood of large muhindi trees, remarkably free from undergrowth.

Ankole forest lies east of Lake Edward, stretching south from Kibazi hill toward the crater lakes and clothing the escarpment and summit of Kusunja hill. It extends to within 40 miles of Mbarara and supplies that station with timber. The principal trees are mubula, *Symphonia grandiflora*, *Carapa grandiflora*, and *Pseudocedrella excelsa*. The last two are valuable timber trees, first found in this forest. There is dense woodland in the extreme north-west of Ankole, consisting chiefly of mugavu and a related species, *Albizzia Brownei*. A small forest in Bwezu district contains *Phoenix reclinata*, *Cordia abyssinica*, *Cola cordifolia*, *Neoboutonia canescens*, and *Pseudospondias microcarpa*.

Kayonsa forest, in south-west Kigezi, extends from 1° to 1°8' S. and 29° 32' to 29° 50' E. It covers mountainous country, at an average altitude of over 7,000 ft.; is well watered by mountain streams, and is dense, and impenetrable save by the single path which traverses it from north to south. There is no information as to the dominant species in this remote forest, which is described as consisting of huge trees bound together by lianas and draped with beard moss. There is a rich undergrowth of tree ferns, orchids, &c. In the sheltered hollows the dense vegetation presents an impenetrable wall to the explorer.

Ruwenzori forest. The lower slopes of Ruwenzori between 6,000 and 8,000 ft. are partly clothed in dense forest. In the Mubuku valley the chief trees are miovu and *Symphonia globulifera*. Dracaenas and tree ferns are conspicuous in the undergrowth. Tree ferns cease at 7,000 ft., where the forest loses its tropical character and small tree-heaths (*Erica*

arborea) first appear. At this altitude the giant conifer *Podocarpus milanjanus* and *Dombeya runsorensis* are the most important trees. About 8,000 ft. the forest thins out to bracken-covered slopes with occasional big trees, not unlike the open parts of the New Forest. A belt of tree-heath and *Podocarpus* separates this from the bamboo zone (see below), which marks the upper timber line and beginning of the Alpine region.

For further details of the forests see Chapter IX, Resources : Forest products.

Alpine Vegetation

The great mountain massifs of Elgon and Ruwenzori and the chain bounding south Kigezi have a distinctive flora, resembling on the lower slopes that of temperate Abyssinia and South Africa, and ascending above the timber line (9,000–10,000 ft.) to purely Alpine conditions. The highland forest and bracken region of Ruwenzori and south Kigezi has already been described. On the western face of Elgon and wooded slopes of Debasien, this zone consists principally of African cedar (*Juniperus procera*) ranging on Elgon almost to the edge of the crater wall.

On all these mountains the forest and bracken country is succeeded by a belt of dense bamboo forest of a peculiar highland species (*Arundinaria alpina*), which begins on the east side of Ruwenzori at 8,500 and on the west side at 7,000 ft. It ascends for about 1,000 ft., and contains no other trees or undergrowth, the bamboos growing only a foot or two apart, so that a path can with difficulty be forced between them. On Elgon the bamboo forest, which is always dripping with moisture, is the home of the bongo (see *Fauna*), but few other animals frequent it.

At about 9,000–500 ft. on Ruwenzori the bamboos are succeeded by a sub-alpine moorland region. Here the woods of giant tree-heath, many 70–80 ft. high, begin : their branches thickly clothed with long grey lichen and moss. In the open ground, the beautiful little Abyssinian violet, umbelliferous

plants like wild carrot and hemlock, ferns chiefly polypodiums, and several fine terrestrial orchids (*Epipactis africana*, *Cynorchus anacamptoides*, *Disa Stairsii*, and *Satyrium crassicaule*) grow abundantly. The Ruwenzori bramble (*Rubus doggetti*) bearing blackberries the size of walnuts, begins at this level. The only timber trees are *Podocarpus* and *Brayera anthelminthica*. The beautiful pink and white everlasting, *Helichrysum formosissimum*, forms large wiry bushes, 4 to 5 ft. high, and the rare African bilberry (*Vaccinium Stanleyi* Schwf.) is found.

From 10,000 to 11,000 ft. has been described as the zone of moss, which forms long streamers and thick cushions of many colours on the tree-heaths and a saturated carpet 2 ft. thick on the ground. Since at these levels rain or wet mist occur daily, the whole vegetation of the mountain is perpetually dripping with moisture. The silvery carpets of giant alchemilla (*A. ruwenzoriensis* and *A. argyrophylla*) and a few tall grounsels (*Senecio jugicola*) begin here. The giant St. John's wort (*Hypericum lanceolatum*), a tree with bright golden flowers, is abundant.

The alpine zone proper begins at about 11,000 ft., and is marked by the appearance of the giant lobelias (*L. Deckenii* and *L. Stuhlmanni*) which grow to 15 or 20 ft. in height and give so strange a character to its landscapes. In *Deckenii* the stout flower pillars, 3 to 6 ft. high, rise from branches of aloe-like leaves. In *Stuhlmanni* the tall naked stem bears a mop of leaves and flower spike at the top, usually 20 ft. or more from the ground. At about 11,500 ft. the giant grounsels (*Senecio anivalis*) forming thickets about 20 ft. high, become numerous; being most abundant in the flat sphagnum swamps immediately under the glaciers, where they are associated with lobelias, helichrysums, brambles, and tree heaths, growing from a dense carpet of crimson, gold, and emerald moss. The tree-heaths cease at 12,500 ft., and *Lobelia Deckenii* at 13,000; but the giant grounsels, splendid bushes of *Heliochrysum Stuhlmanni* with silvery white heads, and a new lobelia (*L. Wollastonii*, allied to the Abyssinian

L. rhyncopetalus), ascend to 14,500 ft. At the level of perpetual snow a rush (*Luzula Johnstoni*), a grass (*Poa glacialis*), and mosses were found. The flora of the central crater of Elgon (c. 13,500–14,200 ft.) resembles that of Ruwenzori, lobelias and giant groundsels being the dominant forms.

CHAPTER VI

FAUNA

General Survey—Mammals—Birds—Reptiles and Fishes—Insect and other Pests—Appendix : List of Big Game Animals.

General Survey

UGANDA, forming a transitional zone between the Rift valley and highlands of East Africa and the Congo forest, and traversed by the great waterway of the Nile connecting it with the Sudan, has formed the meeting-place of animals from many regions of Africa, and possesses for its size a fauna of some richness. Though East African types predominate, many Central African species are also indigenous. Sudan and Abyssinian forms, such as the harnessed bush buck, range south into its northern provinces. Certain southern animals, such as the impala, have here their most northern habitat. It is the home of numerous tropical birds, and in winter receives by way of the Nile valley vast flocks of European migrants.

Further, the varied surface provides conditions suited to many different beasts. The undulating savannahs clothed with tall elephant grass which occupy half Buganda and much of Bunyoro and Toro, give appropriate and almost impenetrable cover to elephant, buffalo, lions, leopards, and wild pigs, though other animals can hardly live there.

In the papyrus swamps and river valleys, which traverse these savannahs, the hippopotamus and more water-loving antelopes, such as the situtunga, find a home. Waterfowl of all kinds abound on the banks of the rivers and lakes. The equatorial forests of the west and south have their own fauna, mostly of the Congo or West African type. Here the chimpanzee, baboon, colobus, and other monkeys are found, with

elephant, buffalo, giant pig, perhaps the almost legendary okapi, forest duikers, the grey parrot and other tropical birds. Special mountain forms of several species have been discovered on the uplands of Elgon and Ruwenzori. It is, however, on the great plains and rolling downs, where a comparatively poor and shallow soil produces short grass and scattered patches of woodland or acacia scrub, that the largest variety of game is found. This is the ideal country for lion, leopard, giraffe, and zebra; above all for the antelope, the resident species of which range in size from the giant eland to the dikdik, and in habitat from the swamps and bamboo forests severally frequented by the situtunga and bongo, to the arid and rocky steppes of the klipspringer and lesser kudu.

The settlement of the country and increased cultivation has naturally reduced the head of game. Little now remains in the fertile Teso and Bukedi districts. Rudolf province, where the chief steppe species were abundant, has been greatly denuded by poachers; but the Karamojo district, especially near the Jiwe and Debasien hills, and the plains between Elgon and Lake Gedge, contain considerable reserves of zebra, buffalo, and antelope. The less populated parts of Buganda, Bunyoro, and western province, and the plains and foothills near the Sudan border, are now probably the districts richest in wild life. The hills and swamps of Toro and Ankole, the Semliki plain, and open country near Lakes Edward and George, peopled with elephant, buffalo, and antelope, are the most favourable for sport, which is in other regions much restricted by the prevalence of elephant grass. Uganda, however, largely for this reason, is greatly inferior to British East Africa from the point of view of the hunter of big game. To ensure the preservation of the more interesting animals, two sanctuaries have been created within which all hunting is prohibited. The larger, or Bunyoro reserve, is bounded on the west by Lake Albert, from the mouth of the river Sonso to the Victoria Nile, on the north by the south bank of the Victoria Nile to Foweira, thence on the east by the old Foweira-Masindi road to the river Titi, then by a straight line

in the direction of the highest point of the hill Nabazana till it meets the river Waiga. Thence the boundary runs along the north-east bank of the Waiga to the escarpment, and along the escarpment to the river Sonso, the north bank of which is followed to Lake Albert. The smaller Toro reserve is bounded to the north by the south shore of Lake Albert, from the river Wasa to the river Muzizi, to the east by the left bank of the Muzizi from Lake Albert to its fall over the escarpment, then by this escarpment to the point where the old Fort Portal-Mbogo road cuts it, and by the right side of this road to the Wasa, the right bank of which is followed to Lake Albert. The game ordinance further prohibits the killing or capture of certain species wherever found, unless under special permit for scientific or other valid reasons. At present (Ordinance of 1913) this absolute protection is accorded to the giraffe, elephant, secretary-bird, whale-headed and saddle-billed storks, crowned crane, and all vultures and owls. Female elephant, rhinoceros, mouse-deer, antelope, and gazelle may never be hunted if accompanied by their young. Other big game may be killed or captured in limited numbers by holders of a yearly resident's licence, price Rs. 75, or visitor's licence, price Rs. 375. (For details see below, List of Big Game.) A fortnightly licence, price Rs. 30, permits the killing of ten antelope chosen from among hartebeest, topi, water buck, reed buck, bush buck, and Uganda cob; but no more of any one than the number fixed in the schedule. Traffic in hides, horns, feathers, and trophies of protected species is strictly controlled; but natives may be given local permits to kill game for meat.

Mammals

The distribution of the larger mammalia is dealt with below (List of Big Game). The dense western forests contain many apes and monkeys, certainly including the chimpanzee and baboon (*Papio doguera*) found in the Semliki valley, and possibly the gorilla, which is believed to exist in the forest south of Kayonsa in Kigezi. The most interesting monkeys

are the beautiful colobus, or guereza, ranging all the forests, and ascending on Ruwenzori to 9,000 ft. The patas (*Cerco-pithecus patas*) occurs in Bunyoro, and the pretty white-nosed monkey in the forests bordering Lake Victoria. Several varieties of galago lemur (*Galago demidoffi*) and the West African tailless lemur (*Periodicticus potto*) are found.

Among carnivora, as well as the lion and leopard which are frequent in all favourable situations, the serval and servaline cat (*Felis serval* and *F. servalina*) are common. The serval abounds everywhere except in the equatorial forest. It is nocturnal, prefers bush country, and is an excellent tree-climber. The servaline cat, which often grows as big as a small leopard, occurs chiefly in Buganda and western province, and appears to prefer the forest. The African wild cat (*F. caffra*) is generally distributed. The caracal (*F. caracal*) only occurs on the north-eastern steppes. Other common carnivora are the spotted hyaena, found everywhere, the civet cat and jackal, the hunting dog (*Lycaon pictus*), though exterminated from the agricultural districts, is still very abundant in the less arid parts of Rudolf and eastern provinces. It is of the dark-coated East African race. It hunts in packs, and is terribly destructive both of antelope and domestic animals, attacking anything from a goat to an eland. Game forsake any region in which it appears.

Otters (probably *Lutra maculicollis*) are found in most lakes and rivers. The fur is much prized by the Baganda, and used for the sandals of kings and chiefs.

The little hyrax is also very important to the natives, especially in the mountains, where its flesh is eaten and its beautiful woolly pelts are sewn together to make the fur cloaks worn against the cold. Two mountain species (*Procavia Crawshayi* and *P. Jacksoni*) are found on the slopes of Elgon and Ruwenzori, where they ascend to the snow-line, and at night fill the valleys with their sorrowful cries. *Procavia marmota*, with long silky brown hair falling over its face, lives in the forests below 5,000 ft.

The most important ungulates are the elephant and buffalo

in the forest and savannah, the giraffe, zebra, and antelope on the downland and steppes. The mysterious and giraffe-like okapi (*Okapia Johnstoni*) described by Sir Harry Johnston and other naturalists from specimens obtained in the Congo forest, and believed to extend east to Mboga, has not yet been found in Uganda though four were shot in the forest west of Ruwenzori in 1913. Antelopes, though numerous in suitable country, are less fully represented than in the Sudan. The large extent of elephant grass, forest, and swamp leaves only a small area open to them. Gazelles especially are few and restricted in range. Two antelopes of special interest are the East African bongo, living in the dense wet bamboo forest on the upper slopes of Elgon, and the South African impala, which attains its extreme northern range in the isolated herds found east of Lake Edward and north of Elgon. Bush, water, and reed buck and Uganda cob are common in appropriate localities. The eland and great kudu, and the savage roan antelope, though not numerous may be found locally. The situtunga is fairly plentiful in the swamps. The little duikers abound in the forests, a special mountain form occurring in the jungles of Ruwenzori. As the mouse-deer or chevrotain (*Dorcatherium aquaticum*) is on the protected list, it presumably ranges eastward from the Congo forest into Uganda.

The pig family includes, as well as the common and vexatious bush pig and hideous wart hog, one of the rarest East African animals—the giant hog of the equatorial forest. Small game is represented by one or two species of hare, which are plentiful, gerbils, and ground and tree squirrels (*Sciurus* and *Xerus*). Bats, both insect- and fruit-eating, are common, and ascend on Ruwenzori to 13,000 ft.

Birds

Uganda is extremely rich in birds, which form a conspicuous element in the landscape. Sudanese, East African, and equatorial types are all well represented. Winter migrants include great flocks of waterfowl, which throng the shores

of the rivers and lakes, and many of our most delicate European song birds. The nesting seasons extend almost through the year. Thus the Bateleur eagles, weavers, and others breed twice, in March and August, the ibis and majority of waterfowl between July and October, and most of the *passeres* between October and December. Information as to nesting and habits, however, is scarce, and much field work remains to be done. The wide range of surface and climate gives appropriate conditions to many different classes of bird, from the sand grouse of the steppes and waders of the lacustrine region to the characteristically gorgeous inhabitants of the equatorial forest. On the one hand, the North African ostrich (*Struthio camelus*) ranges south into the Karamojo district, on the other the West African grey parrot abounds in the forests. Only a few of the more noticeable and important species can be mentioned here.

Among many birds of prey, the most handsome are the Bateleur (*Helotarsus ecaudatus*) and noisy fish eagle (*Haliaetus vocifer*); both common on the Nile and great lakes. The black-crested eagle (*Lophoaelus occipitalis*) is also numerous. The brown vulture (*Necrosyrtes monachus*) is plentiful everywhere. The Egyptian vulture (*Neophron percnopterus*) and African griffon (*Pseudogyps Africanus*) are chiefly found in the dry regions of Rudolf province. The most common and impudent bird of prey is the Egyptian kite (*Milvus Aegypticus*) which haunts all camps and villages and is very destructive of poultry. The black-winged kite (*Elanus caeruleus*), marsh harrier (*Circus aeruginosus*) and steppe buzzard (*Buteo desertorum*) are also indigenous. Owls include the great eagle owl (*Bubo lacteus*) standing 2 ft. high, and spotted eagle owl (*B. maculosus*), Cape scops owl (*Scops capensis*), and little pearl owl (*Glancidium perlatus*). The secretary-bird (*Serpentarius secretarius*) is rare, but occurs on open grassland. All owls, vultures, and secretaries are strictly protected.

The guinea-fowl (*Numida ptilorhynca*) is the most plentiful game bird, and is met everywhere in large flocks. The blue-spotted species (*Guttera crustata*) is local in the forests and

hard to obtain. Partridges (*francolins*) are represented by seven species, the largest being Jackson's francolin (*F. Jacksoni*) with red bill and legs. A mountain race is found on Elgon and Ruwenzori, ascending to 13,000 ft. There are five species of quail, found in short grass, but seldom in large numbers. The most plentiful are the common quail (*Coturnix coturnix*) and the harlequin quail (*C. delagorguei*), which is trapped by the natives in Busoga by means of call birds during its migration, and sold for food. The solitary snipe (*Gallinago major*) is found on Lake Albert. The sand grouse of the south Sudan (*Pterocles quadricinctus*) is found in the extreme north; and the lesser bustard (*Otis melanogaster*) is common in short grassland. Pigeons and doves, which abound everywhere, give good sport and food. The green pigeon (*Vinago hudi-rostris*), which eats well, is the favourite in the south, and is replaced in the north by *Vinago waalia*. In the southern forests *Columba unicincta* is common, but very shy. The commonest dove is *Turtur damarensis*. The collared turtle dove (*T. semitorquatus*) and laughing dove (*T. Senegalensis*) and little ground dove (*Chalcopelia afra*) are also plentiful.

The bird life of the lake-shores and swamps is specially rich and distinctive. On the islands and shores of Lake Victoria and the Nile are great colonies of cormorants. Darters (*Plotus Africanus*) nest in myriads in the ambach swamps which are also the favourite resort of the glossy ibis (*Hagedashia hagedash*), green-backed heron (*Butorides atricapillus*) and small yellow weaver. On the rocks of Ripon falls, crowds of darters, cormorants, and white egrets may always be seen, waiting for the fish swept over the rapids. The Nile goose (*Chenalopex Aegyptiacus*) and beautiful pigmy goose (*Nettopus auritus*), water hen (*Gallinula chloropus*), crested coot (*Fulica cristata*), white-faced and whistling ducks (*Dendrocygna vidua* and *D. fulva*), African mallard (*Anas undulata*) are all common; and multitudes of gulls, terns, knots, stilts, plovers, and lily-trotters are seen. The stone curlew or thick-knee (*Aedionemus vermiculatus*) is found on the stony lake shore, but never in swamp. Numerous

pelicans, storks, and herons haunt the watersides ; among them the goliath purple and black-headed herons (*Ardea goliath*, *A. purpurea* and *A. melanocephala*), buff-back heron (*Bubulcus lucidus*), and little egret (*Garzetta garzetta*). The sacred ibis (*Ibis aethiopice*) is common. The handsome saddle-billed stork (*Ephippiorhynchus Senegalensis*) and the rare shoe-bill or whale-headed stork (*Balaeniceps rex*) are found in the larger swamps and lonely back-waters, the first usually in pairs, the second solitary. The tantalus stork (*Pseudotantalus ibis*) is plentiful ; the white stork (*Ciconia alba*) is one of the commonest winter migrants. The carrion-eating marabou (*Leptoptilus crumeniferus*) occurs locally. The hammer-headed stork (*Scopus umbretta*) is remarkable for its huge nest, often 3 ft. high, placed in the fork of a tree. The lovely crested crane (*Balaerica gibbericeps*), which is now strictly protected, is generally distributed near water and may be seen in flocks wading or dancing on the shore. The black and white kingfisher (*Ceryle rudis*) is found on all the open waters including the mountain crater-lakes, and is very common on Lake Edward, where all the most characteristic waterfowl may be seen in immense profusion.

Coming to the more distinctly tropical birds, the turacos or plantain-eaters are here represented by all their genera, including the gorgeous blue and violet plantain eaters (*Porythaeola cristata* and *Musophaga rossae*), which haunt the fruit trees in populated districts. Two new species have been discovered on Ruwenzori : the beautiful *Gallirex johnstoni*, with emerald, violet, and crimson plumage, in the forest between 4,000 and 7,000 ft. ; and King Leopold's turaco (*Gymnoschizorhis leopoldi*) remarkable for its bald featherless face. Hornbills are well represented. The black and white Bycanistes subquadratus is found in every forest ; the ground hornbill (*Bucorax cafer*) among short grass. The African grey parrot (*Psittacus erithracus*) and red-headed love-bird (*Agapornis pullaria*) are common in forests, and Meyer's parrot (*Paeocephalus meyeri*) occurs in acacia country. Among grain-eaters, weaver birds, whydahs, bishop-birds, and sparrows

abound, and take a heavy toll of the crops. There are 30 native species of weaver, the most common being the black weaver (*Pinnamopteryx nigerrima*), and the black-faced yellow weaver (*Icteropsis pelzelni*). There is the usual abundance of glossy starlings, night jars, honey guides, bulbuls, thrushes, shrikes, and wagtails, and vividly coloured bee-eaters, sun-birds, rollers, and collies. The African chat (*Myrmecocichla*) and the robin-chat (*Cossypha*) are among the most beautiful songsters. European migrants include the swallow, spotted fly-catcher, wheat ear, white throat, tree pipit, and garden willow sedge and marsh warblers.

Reptiles and Fish

Crocodiles swarm in the lakes and rivers, though perpetual war is waged on them, and fishermen are advised to keep at least 3 ft. from the bank where they are present. Among lizards are the big warana (*Varanus niloticus*), 5 or 6 ft. long, found near water, and its cousin, *V. ocellatus*. Chameleons are represented by nine species, two of which (*C. xenorhinus* and *C. Johnstoni*) are peculiar to Ruwenzori, where they have been found at an altitude of 11,000 ft.

Snakes are numerous. Many, such as the blind burrowing *Typhlops punctatus* and *Glauconia emini*, are harmless. Large rock pythons (*P. sebae*) are very common, ranging to 17 ft. in length, and feeding on animals from goats downwards. They seldom if ever attack man. The most deadly and common of the poisonous species are the vipers or puff adders (*Bitis gabonica* and *B. arietens*, the bite of which, especially the first-named, is quickly and surely fatal. These adders are lethargic and seldom attack unprovoked, but may easily be trodden on unless a sharp watch is kept, as they often lie stretched across sunny paths. In camps they sometimes creep into the blankets. They take a considerable toll both of domestic and wild animals. The night adder (*Causus rhombeatus*), though also poisonous, is less often fatal. Among the many species of cobra, the tree-cobra (*Dendraspis jamesoni*), a large, quick moving, olive green forest snake, which is said at some times of

the year to make deliberate attacks on passers by, is exceedingly deadly. Though human victims of snake-bite are not common, it is well to carry crystals of permanganate of potash when travelling.

The fish of Uganda are closely related to those of the Upper Nile ; but have also affinities with the types found in the Congo basin. They swarm in all the chief lakes and rivers, often attaining a large size. In Lake Victoria, the principal edible varieties are bream, barbel, catfish, mudfish, and lungfish or Mamba (*Protopterus aethiopicus*). This last, which is plentiful, often grows to 5 ft. in length. Its flesh is excellent, but it has sharp teeth, is able to inflict a vicious bite, and much dreaded by native fishermen. Off the Sese Islands the following edible kinds are also caught : ngege (good eating), nkeje, nuigo, embovu, male nkuyu, and nhuru. The Victoria Nile is well stocked, especially with nandera, ngambwa, and the mud-fish, semitundu. The bagarra, or Nile perch, is common below Lake Albert, and good eating. At Ripon Falls, huge fish may always be seen being carried over the rapids, and are speared by natives from the banks. Lakes Kioga, Wamala, Gedge, and Salisbury swarm with fish. In Kafu river the mud-fishes mamba and male, and the bony ensonzi, are common. Fish abound in Lakes Albert, George, and Edward, and Semliki river, and in the crater lakes of the western mountains, where delicious trout may be caught. Lake Albert has seven sorts of edible fish. The mputa, ngege, and bagarra are all good eating ; the ngassa is bony ; the male, mamba, and semitundu are mud-fish.

For further information, see Fisheries.

Insect and other Pests

Noxious insects and animal parasites abound in Uganda, and exercise a distinct influence on the development of the country. Among those directly attacking man, special importance attaches to the tsetse fly, *Glossina palpalis*, the host of *Trypanosoma gambiense*, which causes the fatal disease of sleeping sickness (see Health Conditions). *G. Pal-*

palis, which is about the size of the common house-fly, but has wings longer than its abdomen, swarms in the forests bordering Lakes Victoria, Albert, Edward, and George. It breeds in thick cover near water, but not in swamp, and is not found more than $\frac{1}{2}$ a mile from open water or 4,000 ft. above the sea. Three other species of tsetse, all conveying an animal trypanosomiasis which is fatal to cattle, sheep, goats, and dogs, are indigenous principally on the shores of the lakes and in Bunyoro and western province. *Glossina morsitans*, the typical bush tsetse, is widely distributed, its principal reservoir being the Masindi district. *G. pallidipes* is found on the short grass plains near water, and is the prevalent species on the shores of Lakes George and Edward, and on the Ngusi river. *G. fusca*, closely akin to *morsitans*, is found in the forest on the Ngusi river and other places. All appear to be normally hosts of *Trypanosoma ugandae*, practically identical with *T. brucei*; but it must be remembered that under favourable conditions any tsetse can convey any species of trypanosome. In the fly-belts a considerable proportion of the big game is found to be infected with trypanosomes, known to be pathogenic to domestic animals, and acts as a reservoir of disease. The principal fly areas are : (1) the Victoria Nile and Masindi region, (2) the Bugungu district and north-east shores of Lake Albert, (3) West Ankole, including the north-east shore of Lake Edward, the Kazinga channel, and the south-west corner of Lake George, (4) in Toro, from the north bank of the Kazinga channel to the Hima river and neighbourhood of Mahokya, (5) the south Toro game reserve, (6) the Semliki valley north of the Mboga road, (7) the Kivumbo and Butumbi districts of Kigezi. Outbreaks of animal trypanosomiasis have also occurred in Buganda and Busoga. As the fly only bites during the day, stock can be safely transported through tsetse belts by night where practicable, but if allowed to remain in these areas sicken and die out. Tsetse are attracted by swiftly moving objects, and have been known to follow a bicycle or motor cycle for miles. It is thought that the introduction of cycling

among the natives since 1908 has influenced the spread of trypanosomiasis.

Mosquitoes of several species, including two or more malaria-carrying anophelines, are common in the forests near open water and swamps. *Culex fatigans*, conveying both filaria and dengue fever, is present. Among other biting flies, molesting both man and beast, are several species of gad-fly (*Tabanidae*), which are specially numerous near water and during and after the rains. It is probable that they are agents in the spread of cattle disease. The excellently-entitled *Similium damnosum* or dog-fly (mbwa) haunts the neighbourhood of Ripon Falls and part of Mabira forest, and when in season makes these districts almost intolerable. It is a tiny but poisonous midge, which inflicts a bite raising large swellings, and usually producing open sores.

Insects attacking crops are numerous and destructive. Every plant of economic value has its own enemies, principally fruit flies, beetles, and scale insects (see Resources). Many of these are covered by legislation compelling planters to adopt remedial and preventive measures. General plagues include locusts (*Pachytylus migratorioides*) which appear annually in great flocks. Though they do little harm in the forest and rich savannah lands, their visitations mean scarcity if not famine in the drier districts. As they are easily frightened by noise and movement, increase of population and settlement will probably abate this nuisance.

Termites of several genera abound in the districts below 7,000 ft. in altitude, and in many parts the ground is thickly covered with their hills. Ants are legion, and include the ferocious black forest and red tree ant; formidable biters, which attack any thing they find in their way. When an advancing column of these is encountered, salt or hot embers should be scattered, or a fire lighted in their path. A strong party is capable of scattering any camp or safari which it attacks. Small ants, which sometimes invade store-boxes, &c., in their myriads, are best smoked out. Large crickets of loathsome aspect, beetles, varying from the huge Goliath

downwards, mantis, stick insects, and gaily coloured cockroaches are found everywhere. In the forests, large and brilliant butterflies and moths abound. Lovers of beauty should be warned against handling these in the caterpillar stage, as the attractive golden fur in which many of them are clothed is poisoned, and inflicts painful and sometimes serious stings.

Among animal parasites special importance attaches to the fever-tick, *Ornithodoros moubata*, the carrier of spirillum or relapsing fever, which is widespread in native huts, rest houses, and old camping-grounds. It is hard and flat, about 8 mm. long, and greenish brown in colour. Jiggers or sand-fleas abound in native dwellings and rest-houses, and watch should be kept for the first sign of their presence. For further particulars see Health Conditions.

LIST OF UGANDA BIG GAME

Primates

Chimpanzee. The chimpanzee is now diminishing. It is restricted to the forests of Bunyoro, Toro, and Ankole, and perhaps the western slopes of Ruwenzori.

One may be shot by holders of a visitor's or resident's licence.

Colobus Monkey. Three species of colobus monkey occur in the Uganda forests. The beautiful black and white colobus, or white-tailed guereza (*Colobus caudatus*) is still fairly abundant in the dense forests of Bunyoro, Toro, and Buganda, though vigorously hunted for its fur by both natives and Europeans. It is entirely arboreal in its habits and very difficult to approach, living entirely on the tops of the tallest trees and feeding on leaves. On Elgon and Ruwenzori it ascends to 9,000 ft. Its flesh is eaten by the Andorobo and other tribes. A black race (*C. ruwenzorii*) inhabits the forest on the north-west flank of Ruwenzori. A chestnut red and grey species without black markings (*C. rufomitatus*) is found in the Toro forest east of Ruwenzori.

Two colobus or other fur-monkeys may be shot by holders of a resident's or visitor's licence.

Ungulata

Elephant. The elephant is generally distributed through Uganda, wherever the combination of forest and elephant grass affords it good cover, and at some distance from populous areas. In the more remote districts where they are free from interference, the herds make considerable

migrations, commonly keeping to the dense forest during the hot weather (December to February), and moving to the open savannahs during the rains. Several local races have been distinguished. The majority belong to the East African type (*Elephas africanus knockenhaueri*), a large breed with small triangular ears. A variety (*E. a. albertensis*) occurs in the Bunyoro forests. The Lake Rudolf type (*E. a. Cavendishi*) with broad ears and more slender tusks, ranges along the northern frontier westward to the Lade and south to Mount Debasien. Finally, the Congo forest elephant (*E. a. cottoni*), a distinct breed, with long slender tusks, is sometimes obtained in the Semliki valley.

Elephants appear to be most plentiful in Bunyoro district, especially Budonga and Bugoma forests. Here they breed, and the young are kept until large enough to travel with the herd. They are also locally numerous in Buganda province, especially Tero forest. Toro district is famous for its elephants, which are specially numerous on the northern slopes of Ruwenzori and in the Semliki valley. They carry good ivory though those in the north seldom have tusks exceeding 50 lb. in weight. They extend southwards, throughout the forest region of West Ankole. In the extreme south, on the mountain slopes of south Kigezi, and in the Maramagambo forest, a race with very small tusks is met. In eastern and Rudolf province, elephants are comparatively scarce; but are found in small parties near Mount Debasean, the Nakwai and Murusokar mountains, and the highlands of the Sudan frontier. Five large herds were known in 1912 to exist in the Lango district.

Elephants are absolutely protected, and may not be killed or captured without a special permit, costing Rs. 150 for one elephant, and Rs. 450 for two. Such permit is only issued to the holder of a resident's or visitor's licence.

Rhinoceros. Shoulder height about 5 ft. Length up to 12 ft. Anterior horn up to 40 in., but usually much less. The black rhinoceros (*Rhinoceros bicornis*) is scarce and local, and is nowhere found west of the Nile. It is fairly numerous in the moist country west of Mount Debasien north to the Magosi hills, and in the plains between Nangiya and Teretenia. It is also met with on the Namasagali peninsula, ranging north to Lake Kwanja and the east bank of the Victoria Nile; but never retreats more than 10 miles from the river. In the extreme south-west it occurs throughout the Kigezi forest.

One rhinoceros may be killed by holders of a visitor's or resident's licence; but females going with their young are protected.

Grant's Zebra. Grant's zebra (*Equus burchelli granti*), the East African race of the Burchell type, distinguished by the absence of shadow stripes, is generally distributed in the plains, ranging west to Lake Edward; and is specially numerous in Buganda province, and from the western foothills of Mount Elgon to Lake Gedge. The Kilimanjaro race (*E. b. bohmi*) has also been obtained in Uganda.

Grevy's or Mountain Zebra. Shoulder height 58-9 in. This large Abyssinian species (*Equus Grevyi*) is the characteristic form in Rudolf province, where it is very numerous, especially in the barren, hilly or lightly bushed country near the lake; moving in herds of 10 to 20, and often in company with the beisa oryx.

One zebra may be killed by holders of a visitor's or resident's licence.

Nubian Wild Ass. The wild ass (*Equus asinus*) is said by Sir H. Johnston to occur in the desert region of north-east Rudolf province.

Buffalo. Shoulder height (bulls) about 5 ft. Three distinct races of the African buffalo (*Bos caffer*) are found in Uganda. The wide horned black buffalo of South and East Africa (*B. c. typicus*) once extended right across the Protectorate; but the cattle plague of 1883 and subsequent years so reduced the herds, that its only representative is now the magnificent Ankole breed (*B. c. radcliffei*), with immense horns, often measuring 48 in. on the inside curve, and having a spread of 52 in. This fine beast is found in Ankole district and the eastern foothills of Ruwenzori, perhaps ranging to Toro and Buddu. The massive Abyssinian or Sudan buffalo (*B. c. aequinoctialis*) of which the Uganda race is sometimes distinguished as *B. c. neumanni*, is widely distributed, especially in the Kiagwe district of Buganda and the Bukedi, and Karamoja plains of eastern province. The horns average 25 in., with a spread of 31 in. The dwarf red Congo buffalo (*B. c. nanus*) with short erect horns is numerous in the Semliki valley, western Toro, and the forest on the eastern shore of Lake Edward. It is well under 4 ft. in height, and varies in colour from light red in the young to warm rufous in the mature animals. The inside curve of the horns averages 12 to 15 in., and the spread 11 to 15 in. The Semliki buffalo (*B. c. cottoni*) red or tawny when young, dark brown when adult, is regarded by some naturalists as a separate race.

Four buffaloes may be shot by holders of a visitor's or resident's licence.

Kongoni, or Coke's Hartebeest. Shoulder height 45 in. Horns short and stout, up to 20 in. This species (*Bubalis cokei*) is rare and local, but occurs in Rudolf province and is fairly numerous in Mount Jiwe. The Uganda race is said to be of a darker yellow brown than the type form and is sometimes distinguished as *B. c. rothschildi*.

Uganda Hartebeest. This species (*Bubalis lehwel insignis*) is often confused with Jackson's hartebeest, which it resembles in general build, but is distinguished by its extensive black markings. It is locally distributed throughout the Protectorate, but nowhere common. Very rare in Buganda, it is found in Bunyoro and Gulu districts and the Semliki plains and the highlands of the Sudan frontier. It is said never to frequent the same district as the topi. The Katonga river forms a dividing line between the species, the hartebeest being found on its north bank, the topi on the south.

Six may be shot by holders of a visitor's, resident's, or fortnightly licence.

Jackson's Hartebeest. Shoulder height 52 in. Horns 20–25 in. This East African hill species (*Bubalis lehwel Jacksoni*) distinguished by its fox-red coat and the absence of markings on the face and legs, is found in the eastern districts of eastern province, chiefly on the Elgon plateau, preferring lofty open plains.

Six may be shot by holders of a visitor's, resident's, or fortnightly licence.

Topi. Shoulder height, 50 in. Horns, up to 20 in. The topi (*Damaliscus korrigum jimela*) is locally distributed, principally in the north of eastern province, ranging into Rudolf province, and in Buddu and south-east Ankola districts. It is specially plentiful in Mount Jiwe. Herds number 20 to 40.

Four may be shot by holders of a visitor's, resident's, or fortnightly licence.

Uganda Tiang. Shoulder height about 45 in. Horns 18–22 in. This race (*Damaliscus tiang selousi*) closely resembles the topi, but is distinguished by its cinnamon coat and longer horns. It ranges northward along the Nile valley from Lake Albert, and eastwards to Lake Rudolf. Not mentioned in the Game Ordinance.

Uganda Red Duiker. This species (*Cephalophus johnstoni*) ranges through the forests from the west slopes of Elgon eastward to Ruwenzori, where it ascends to 10,000 ft. and southward to the Kigezi mountains. Young animals are a darkish brown; but adults have a thick woolly coat of bright rufous.

Ten may be shot by holders of a visitor's or resident's licence.

Uganda Blue Duiker. Shoulder height 12 in. This tiny species (*Cephalophus equatorialis*), of a deep blue grey colour shading to black, is probably a local race of the black rumped Congo duiker (*C. melanorheus*) which it closely resembles. It is well known under its native name of ntaganya, being widely and abundantly distributed in the lowland forests from Mount Elgon to Ruwenzori, and from the Victoria Nile southwards to Lake Edward and Karagwe. It is trapped by the Baganda both for its meat and for its skins, which are much used for native mantles and rugs.

Ten may be shot by holders of a visitor's or resident's licence.

Bush Duiker. Shoulder height about 25 in. The Uganda race of bush duiker (*Cephalophus gremmi nyansae*) ranges north from Lake Victoria to the latitude of Nimule.

Ten may be shot by holders of a visitor's or resident's licence.

Abyssinian Duiker. Shoulder height 16–18 in. This species (*Cephalophus Abyssinicus*) is distinguished from the preceding by its lighter yellowish fawn colour. It occurs only in the extreme north of Rudolf province. Not mentioned in the Game Ordinance.

Klipspringer. Shoulder height 18 to 22 in. Horn length 4 in. The klipspringer (*Oreotragus saltator*) is found in rocky hills in Rudolf province and east of Mbarara in Ankole. The flesh is good eating.

Ten may be shot by holders of a resident's or visitor's licence.

Abyssinian Oribi. Shoulder height 22 in. Horn length 5 in. This oribi (*Ourebia montana*) is locally distributed in level and bushy country. It is said to be common in Buganda, and in east and south-east Ankole. The Nile race (*O. m. aequatoria*) is plentiful in Gulu and Chua districts, and between Mounts Logire and Agoro on the Sudan frontier. The Uasin Gishu race (*O. m. cottoni*) distinguished by its brighter tawny colour and long coat, ranges north from Elgon through Karamoja. Meat excellent.

Ten may be shot by holders of a resident's or visitor's licence.

Black-tailed Oribi. Shoulder height 23 to 25 in. This species (*Oribia Kenya*) distinguished by its bright tawny colour and thickly tufted black tail, is said to be plentiful on the lofty savannahs of Kavirondo, ascending to 7,500 ft. and hence ranges just within the eastern frontier of Uganda.

Six may be shot by holders of a resident's or visitor's licence.

Large-snouted Dik-dik. Shoulder height 14 in. This species (*Madoqua guentheri smithi*) is distributed in Rudolf province, and in eastern province, east of long. 34° 30', in wooded country, ascending to 6,000 ft. It is distinguished from all other East African dik-diks by the enormous development of the proboscis.

Ten may be shot by holders of a resident's or visitor's licence.

Defassa Water-buck. Shoulder height 48 in. Horns 28-36 in. Spread 36 in. This water-buck (*Cobus defassa*) is plentiful near the lakes and rivers in the savannah and lightly bushed country. The common Uganda breed (*C. d. ugandae*) is larger and rather paler in colour than the typical Sudan race, and bears magnificent and very widely-spread horns. Its range extends westward into the Congo and southward to Tanganyika. In eastern province, east of lat. 34° E., a handsome race with a long reddish coat (*C. d. nzotiae*) is met with, and in Rudolf province a smaller thin-coated greyish form (*C. d. matschiei*). The Sudan race ranges south into northern province, where it extends eastward to Lango, and southward to the southern shores of Lake Albert. The water-buck is specially numerous in Buganda, and throughout western province, abounding in north-west Ankole and the Semliki valley. The Toro and Lake Edward breeds are noted for their immense horns. It is also very plentiful in the plains east of Lake Gedge.

Six may be shot by holders of a resident's, visitor's, or fortnightly licence.

Uganda Cob. Shoulder height 35 in. Horns 15-20 in. Spread 14 in. The Uganda cob (*Cobus Thomasi*) is generally distributed, ranging north into Mongalla province (Sudan) and south to the southern shore of Lake Victoria. It is distinguished from defassa by its golden-tawny colour, and is generally found in open grass land near water. It is common in Buganda, on the plains east of Lake Gedge, near Albert and Edward lakes, and in north-west Ankole. The herds seldom exceed 20 or 30, and are fond of using the termite hills as look-out stations.

Ten Uganda cob may be shot by holders of a resident's, visitor's, or fortnightly licence.

Reed Buck. Shoulder height 30 in. Horns 11 in. Spread 9 in. The

reed buck (*Per vicapra arundinum* or *Redunca redunca*) is distributed throughout Uganda in bushy and thick savannah country. Several races have been distinguished. The Sudan type (*R. r. cottoni*) ranges south to Lake Albert. The true Uganda type (*R. r. wardi*), distinguished by its dark brown colour, long coat, and sharply pointed horns, ranges the high ground from the Elgon plateau to Ruwenzori, and is common in Bunyoro and Buganda. The Ankole type (*R. r. ugandae*) differs from *wardi*, of which it is probably a local race, by its shorter horns and darker coat. It is restricted to Ankole district, and is abundant on the plains east of Lake Edward.

Ten reed buck may be shot by holders of a resident's, visitor's, or fortnightly licence.

Mountain Reed Buck. Shoulder height 28 in. Horns 5½ in. Spread 5½ in. The mountain, or rock reed buck (*Oreodorcas fulvorufula chanleri*) is found in the eastern part of Rudolf province, on rocky hills and slopes, generally in the same type of country as the klipspringer. It is characterized by its greyish colour. The horns are shorter than in *Redunca*.

Not separately mentioned in the Game Ordinance.

Impala. Shoulder height 34 to 38 in. Horns 30 in. Female hornless. The impala (*Aepyceros melampus suara*) is the rarest of Uganda antelopes. It occurs locally, in isolated herds, in south Ankole from Lake Victoria to Lake Edward, and on the upper Turkwell and its tributaries, north of Elgon. It lives in bush country, grazes the open plains, and is never found far from water, being quite unable to withstand thirst. The colour is a conspicuous cinnamon-rufous with black markings. The impala go in herds, and when alarmed make for cover at a great pace, taking extraordinary bounds into the air.

Two may be shot by holders of a visitor's or resident's licence.

Grant's Gazelle. Shoulder height 34 in. ; massive lyrate horns up to 28 in., usually less. Bright's variety of Grant's gazelle (*Gazella granti brighti*) is found in Rudolf province, ranging eastward into northern province and south into the Karamoja district, and is specially numerous in the Jiwe and Magosi hills. It is smaller and paler than the type race, and has shorter horns.

Ten may be shot by holders of a resident's or visitor's licence.

Beisa. Shoulder height 48 in. Horns 32 in. The beisa (*Oryx beisa*) is found in Rudolf province, and is fairly plentiful near the Magosi hills on open or lightly bushed plains.

Six may be shot by holders of a resident's or visitor's licence.

Roan Antelope. Shoulder height 55 in. ; horns 24–34 in. The Nile roan (*Hippotragus equinus bakeri*) is found in Rudolf, northern and eastern provinces, but does not range south of lat. 2° N. Its principal habitats are the plains south-east of Nangiya and between Nangiya and Agoro. A few are found in the Chua district, but it is nowhere common. Roan are savage when attacked, and should be approached with caution.

One may be shot by holders of a visitor's or resident's licence.

Eland. Shoulder 60–9 in. Horns 25 in. Spread usually 12 in. The East African race of eland (*Taurotragus oryx pattersonianus*) is locally distributed throughout Uganda. It is numerous in Rudolf province, and especially near the Jiwe and Magosi hills, generally on dry open plains or among thorn scrub, but may ascend to a great height in mountain districts. A few isolated herds are found in Buganda. It occurs east of Lake George, and in south and south-east Ankole. Eland meat is tender and juicy.

One may be shot by holders of a visitor's or resident's licence.

Bongo. Shoulder height 48 in. Horns 25–35 in. This brilliantly-coloured forest antelope (*Boocercus eurycercus isaaci*) is seldom found in East Africa east of the Mau escarpment, but is said to occur in the bamboo forests of Mount Elgon. It does not descend below an altitude of 6,000 ft. The bongo lives in dense, wet forests. It is shy and wary and very difficult to kill, threading its way at surprising speed through the thick jungle in which it lives. It goes in herds, and feeds upon leaves and twigs. In colour it is bright chestnut banded with white, and when adult is about the size of an Alderney cow.

Four may be shot by holders of a visitor's or resident's licence.

Harnessed Bush Buck. Shoulder height 30–5 in. Horns 11–18 in. The harnessed bush buck (*Tragelaphus scriptus bor*), distinguished by its handsome transverse stripes, is a Sudan species, which appears to be restricted in Uganda to the neighbourhood of Lake Albert and the Nile valley from Koba to Nimule. It may range eastwards along the Sudan frontier to long. 34° E. It is shy and of solitary habit, and is seldom to be seen before dusk.

Six may be shot by holders of a resident's or visitor's licence.

Common Bush Buck. Shoulder height 30–5 in. Horns 10 in. Two races of the unstriped bush buck are found in Uganda. The highland race (*Tragelaphus scriptus dilamesei*) is found throughout Rudolf province and in the Chua, Lango, and Karamoja districts, and on the slopes of Elgon, usually in wooded or bushed country. The Uganda race (*T. s. dama*), distinguished by its lighter colour and more numerous white spots, ranges westward from the Kavirondo country to the Semliki valley, north to Nimule, and south to Kigezi, where it is exceedingly common on the bracken and bramble-covered hills, and in the bamboo forests of the southern mountains. It is found side by side with the harnessed bush buck on the shores of Lake Albert. Natives will not touch the flesh of the bush buck, which they regard as poisonous.

Ten may be shot by holders of a resident's, visitor's, or fortnightly licence.

Situtunga. Shoulder height 36–45 in. Horns 20–35 in. The situtunga (*Tragelaphus*, or *Limnotragus Spekei*) is fairly numerous wherever papyrus swamps offer it appropriate conditions. It is said to be plentiful in the marshes bordering Lake Victoria, in Busoga district near the Victoria Nile,

in the swamps surrounding Lakes Kioga and Kwania, and in the marshy valleys of Buganda. In western province, it occurs in all the large papyrus swamps of Toro, and in Kigezi, where it can be observed in large numbers. It is the most water-loving of the antelopes, an excellent swimmer, with long hoofs specially adapted to walking on the marshes and soft mud. When disturbed it completely immerses itself, only its nose appearing above the surface of the water. It can seldom be shot unless the swamp in which it hides is thoroughly beaten.

Four may be shot by holders of a resident's or visitor's licence.

Great Kudu. Shoulder height 60 in. Horns 45-60 in. on the curve. The male great kudu (*Strepsiceros capensis*), the handsomest of African antelopes, is distinguished by its immense spiral horns and long throat mane. Its colour is tawny with transverse white bands. It occurs locally in small parties in the Chua district and near the Debasien and Maroto hills, usually in bushy and rocky country. The meat is excellent.

One may be shot by holders of a resident's or visitor's licence.

Lesser Kudu. Shoulder height 41 in. Horns 30 in. on the curve. This species (*Strepsiceros imberbis*) occurs in arid bushy country in Rudolf province, on Mounts Jiwe and Teretenia, and among the Magosi hills. Males are usually solitary; females go in small parties with their young. When startled they bound away, often making 6 ft. leaps into the air. They feed at dawn and dusk, chiefly on acacia and other scrub. The colour is bright tawny with conspicuous white transverse stripes and a black and white vertebral line.

Four may be shot by holders of a resident's or visitor's licence.

Giraffe. Height (bulls) 16-18 ft. A distinct race of giraffe (*Giraffa camelopardalis rothschildi*) is distributed through the steppe regions of Uganda, north of lat. 1° N. It is distinguished from other North African types by its massive skull and great size, bulls often standing 18 ft. high. The body markings are separated by narrow reticulations, its neck may be either reticulated or blotched. Its range is north and north-west from Elgon through the highland and desert regions of Rudolf and northern provinces. In eastern province it is found on the Lango plains round the north shores of Lake Kwania and the Namasale peninsula, and in the plains east of Lake Gedge.

The giraffe is completely protected, and may only be shot under special licence.

Bush Pig. Shoulder height about 26 in. The East African bush pig (*Potamochoerus choeropotamus daemonis*) is common in thick bush and woodland throughout Uganda, but owing to its nocturnal habits and the thick undergrowth which it frequents, is seldom seen. In cultivated areas it does much damage, making nightly forays on the crops in herds of 10 to 20 or more. It is plentiful in the wooded regions of Buganda, Bunyore, Busoga, and Ankole.

Not protected.

Giant Forest Hog. This rare and little-known species (*Hylochoerus meinertzhageni*) is said to occur in the highland forests of Mount Elgon and in Bunyoro. A large variety, either identical or closely related to it, is found in Maramagambo forest, east of Lake Edward. The forest hog is distinguished by its great size, sometimes equalling that of a small hippopotamus—dense black coat, large muzzle, and prominent warts beneath the eyes. It is of solitary habit, and seldom if ever leaves the jungle, where it ascends to 10,000 ft.

Four may be shot by holders of a resident's or visitor's licence.

Wart Hog. Shoulder height 26–30 in. Upper tusks 12–25 in. The East African race of wart hog (*Phacochoerus africanus aeliani*) occurs throughout Uganda, chiefly in lightly-bushed country from 3,000 to 7,000 ft. above the sea. It is common in Buganda, Bunyoro, east and south-east Ankole, and the plains near Lake Edward. Wart hogs usually live in burrows, either in pairs or small family parties. In populated districts they are often of nocturnal habit, and may become extremely destructive. They should be hunted with caution, as when wounded they strike hard with their tusks. Though savage when attacked, they are easily tamed.

Four may be shot by holders of a resident's or visitor's licence.

Hippopotamus. The hippopotamus is plentiful in all the large rivers and lakes of Uganda. It is said to avoid Lake Edward, which appears to be too brackish for it; but some observers report that it exists there in considerable numbers, and is specially plentiful in the small swampy lake of Kikeri. The dominant species is of the type, or Nile race.

Two hippopotami may be shot by holders of a resident's or visitor's licence.

Carnivora

Lion. Shoulder height 40 in.; weight 400–500 lb. The lion is generally distributed in open and lightly-bushed country, and has been known to ascend to 9,000 ft. Two distinct races are found within the Protectorate. The East African type (*Felis leo massaica*) ranges westward from Lake Rudolf to lat. 33° N., and south through Karamoja district to Elgon. The Uganda lion (*F. l. nyanzae*), distinguished by its darker colour and shorter mane, inhabits Buganda, where it is said to be plentiful, the Bukedi, Busoga, and Bunyoro districts, and the open savannahs of western province. It is specially abundant in Kigezi, particularly near the river Ishasha.

Unprotected.

Leopard. The leopard is widely distributed both in forest and savannah throughout the protectorate, from the Nile lowlands to the mountain zone, ascending on Ruwenzori to 11,500 ft.; and is only absent where water is absolutely lacking. The East African race (*Felis pardus suahelica*) ranges westward to Lake Edward, and abounds in Buganda and the Busoga district. It is marked by the small size and great number of the

spots, which form rosettes or imperfect rings. The Nile race (*F. p. chui*) marked by fewer and more widely-spaced spots, replace it in the Nile valley from Lake Albert northward. The forest leopard (*F. p. ruwenzori*) with large and strongly-marked rosettes and a predominantly black tail, occurs at high altitudes in the forests of Ruwenzori, where its tracks have been found at 13,400 ft., and possibly in those of Elgon.

Unprotected.

Cheetah. The highland race of Cheetah (*Cynoclorus jubatus velox*), though less common than the leopard, is found in northern and eastern provinces, north of lat. 2° N.

Unprotected.

CHAPTER VII

POPULATION

The Pygmy Group—The Bantu Group—The Hamitic-Bantu Group—The Nilotic Group—The Masai Group—Education.

THE total population of the Protectorate in 1918 was 3,318,170.¹

The native population may be conveniently divided into five groups as follows :

1. The pygmy type. This type is not widespread in Uganda. It is practically confined to the Semliki valley, where the pygmy forest of the Congo overlaps into Uganda territory. It probably represents the aboriginal type for the entire country.

2. The Bantu negro type. This is widespread in the south-west, but occupies little territory elsewhere. From the north and centre it has largely been displaced by Nilotic immigration ; in the south-west it has been mixed and overlaid with Hamitic blood. There is very little pure Bantu stock in Uganda ; but it is a virile race, and appears to hold its own when crossed. The various theories of its origin need not be discussed here.

3. The Hamitic type. The presence of this type in Uganda links that country up with northern Africa and the Mediterranean basin. The Hamitic race, including elements so widely separated as the Hima, Galla, Somali, and Berber, is rather a ' Caucasian ' than a negro stock. It is often dark in complexion, but the features bear a distinct resemblance to those of European peoples, and are often, according to our standards, strikingly handsome.

4. The Nilotic negro type. This type inhabits the north

¹ See Appendix II.

of the Protectorate. It is related rather to the Sudanese than to the Bantu stock, and can probably be traced to an origin on the Upper Nile.

5. The Masai type. It is convenient to treat this, on linguistic grounds, as an independent race, though it is far from clear that this is ultimately the case. It is at any rate plain that there is a considerable overlap with the Nilotic type, and that a number of tribes—Karamojo, Teso, Latuka, Bari—form a chain of links gradually merging the Masai type in the Nilotic.

Uganda is thus a marginal area in respect of its native populations. It contains the centre of no important race. The head-quarters of the pygmies lie west of it ; of the Bantu, south ; of the Hamites and Nilotics, north ; and of the Masai, east. In Uganda itself we find only fragments of these races brought face to face in a common environment, often strongly and confusingly affected by each other's influence and in danger of losing some at least of their own general characteristics. Here, as in other parts of the world, such a fusion of peoples has produced interesting cultural results ; but it complicates the problems of ethnological study and of practical administration.

THE PYGMY GROUP

This, though the oldest, is perhaps the least important element in the population of Uganda. It is generally supposed that this type of short, prognathous negro originated in the south of Asia, and migrated westward by way of Arabia into Africa, where it is still to be found in the great forests between the Nile and Congo basins, as well as elsewhere in scattered communities. So far as Uganda is concerned, the pygmy type is practically confined to the Semliki valley, though similar and perhaps allied tribes are to be found in the forests of Kiagwe, and on the northern and western slopes of Elgon (for these Batwa of Elgon, see below, under Mbai, Nilotic Tribes).

Of their physical characteristics some are more widespread than others. Short stature is generally combined with a long

upper lip, underhung jaw, broad and flat nose, long arms, and short legs. As a rule black, they are sometimes brownish black, or even reddish yellow or russet. But sometimes the prognathous type is combined with a tall figure, and in these cases we probably have mixed races, as in the Andorobo of British East Africa.

In mental characteristics they are as a rule intelligent, and much quicker than the average negro. Here and there they have a well-developed artistic sense. Their social organization, on the other hand, appears to be at a low level, and they live in a very primitive manner in the forests, being as a rule entirely ignorant of the arts of agriculture.

The pygmy tribes live in tiny circular huts, about 3 ft. high, made of a framework of sticks covered with leaves and grass. These huts, situated among the undergrowth of a forest, are often hard to distinguish from their surroundings. Only one person can sleep in a hut, so that a family possesses as many huts as it has members.

Their religion is very primitive. They believe in a 'high god', in transmigration of souls, and in charms. Ceremonial dances are common.

Lendu

The Lendu inhabit the country to the west of the southern half of Lake Albert. This country, at any rate above the escarpment, is mainly grassy upland; but where it slopes towards the Congo basin, it is covered with dense forest, and the Lendu are more closely allied to the forest tribes ethnologically and physically than to the people of the Nile valley. They have come into prominent notice lately owing to the fact that they became to a great extent enslaved by the Sudanese soldiers of Emin Pasha's equatorial province when they were driven by the Mahdist invasion of the equatorial Nile to take refuge in the wild countries to the west of Lake Albert. When the Sudanese troops were transferred to Uganda by Sir F. Lugard, they brought with them hundreds of Lendu followers, who now form thriving colonies in most

of the Government stations. They are conspicuous for their short legs, which are out of all proportion to the size of their bodies. They let their hair grow long, so that the head is surrounded by a mop of plaits full of grease or clay. Their colour is a chocolate brown. The men have a fashion of boring the upper lip with from two to eight holes, but they do not knock out their front teeth as do their neighbours. They practise circumcision, and wear a small piece of bark-cloth as apparel ; the women wear nothing at all, but curiously enough the children are seldom seen naked. Their main food is grain, and they are the only pygmy tribe in the Protectorate who keep cattle. They excel in basket and mat making, dyeing their materials in various colours and weaving in divers patterns. Their huts are rather longer than the average pygmy hut, and are provided with a kind of porch.

Bambuba, Babira

These tribes are to be found near the Congo and the Semliki river. They practise cicatrization, or scarring of the body, to a remarkable extent, file their teeth to a point, and also pierce the upper lip, the women often inserting a wooden disk into these holes. The men of these tribes are all circumcised. In former days it is probable that they were cannibals, but this practice is dying out. None of these tribes keep cattle, goats, sheep, and dogs being their only domestic animals. They cultivate the banana, beans, maize, sorghum, pumpkins, and tobacco ; and eat rats and snakes. These tribes vary very much in appearance, especially amongst the Babira. One meets with types that are low, degraded and simian, side by side with tall good-looking negroes, but there is little evidence of any recent Hamitic immigration. The Bambuba build devil-huts, and have organized religious ceremonies.

Batwa

A tribe of semi-pygmyies averaging 4 ft. 6 in. in height, whose chief habitat is the mountainous forest country to the southwest of Lake Bunyonyi. They are found in British territory

in the Kigezi district. They excel in hunting, and are a wild race whose raids, until suppressed by European intervention, were the terror of their neighbours. For the Batwa of Elgon, see below, p. 211.

Bakiga

A sturdy independent race who inhabit the district of Rukiga. They wear a single skin as clothing, and their hair is often worked into long tassels. They are much addicted to hard drinking.

THE BANTU GROUP

Most of central and south-western Uganda is inhabited by Bantu tribes; sometimes exclusively, sometimes—more frequently, indeed—in partnership with Hamitic peoples. The kingdom of Buganda is peopled by a Bantu stock, strongly influenced in the past by Hamitic blood; while in Bunyoro, Toro, and Ankole the Bantu population only forms the lower stratum in a social system whose upper class is of Hamitic origin.

Elsewhere the Bantu blood is purer, as among the Basoga, Bagishu, and Bakene of the region between Victoria Nyanza and the summits of Elgon, the Bakonjo of the Ruwenzori region, and a few other tribes. In general these purer Bantu tribes are of little importance. They have neither the civilized character and progressive disposition of the best Bantu-Hamitic hybrids, nor the vigorous independence of the Nilotic stocks, and their material civilization is on a low plane.

Baamba

This is a tribe of the Semliki district, by some writers classified (in virtue of certain physical characteristics) as belonging to the pygmy group. The Baamba are, however, a race of normal stature, with territory of their own and a regular tribal organization under their own chiefs, so that it seems preferable to place them on the other side of the line separating Pygmy from Bantu tribes.

They are an agricultural people, living chiefly on plantains and cereals. They practise circumcision and cicatrization.

Baganda

The Baganda, perhaps the most remarkable of all Central African tribes, are the chief inhabitants of the country, lying west and north-west of Victoria Nyanza, which gives its name to the Protectorate. This country, the kingdom of Buganda, is bounded on the north by Bunyoro, on the west by Ankole and Toro, on the south by Kiziba, and on the east by the lake.

The tribes inhabiting this region are of Bantu origin, but their aristocracy contains a considerable proportion of Hamitic blood ; in fact, the difference between Buganda, considered as a Bantu country, and Bunyoro, considered as a Hamitic-Bantu country (see below, under the Hamitic-Bantu group) is a question of degree only. The Hamites of Buganda have lost not only their primitive tongue but also their pastoral and nomadic habits, and have become to a very high degree assimilated to the Bantu whose blood they have enriched, and whose social and political life they have powerfully assisted to develop.

These semi-Hamitic Baganda of the upper classes preserve traces of their origin in a lighter complexion and a much less negroid type of face. In all alike the hair is thick and woolly, and is kept short by shaving every two months or so ; but individual Baganda differ greatly in type, some being tall, slender, and athletic, with refined features, others short, thick-set, and coarse in the face. This variety is present even in the lower classes.

The Baganda are probably the most advanced and civilized section of the great Bantu race. They have shown in the past a remarkable gift for organization and political life, manifested in the success attained by the kingdom of Buganda under its later kings, a success comparable to that of Abyssinia under the recent emperors ; and still more remarkable is the quickness with which the Baganda have welcomed further advances and new ideas suggested from outside. They have

in this way proved most useful intermediaries in bringing the whole Protectorate into touch with European civilization.

The superior civilization of the Baganda betrays itself in several characteristic notes : ornaments are little worn, and mutilation of the features, cicatrization, &c., are entirely absent (the Baganda is the only Bantu type of Eastern Equatorial Africa of which this can be said) ; the whole body is washed twice daily ; and the person is completely clothed, formerly in bark-cloth, now in imported cotton sheeting.

In the arts and crafts they are tolerably proficient. They have long been road-makers, and this fact has had a great influence on the rapidity with which civilization has spread in their country, so that nowadays when most of the upper-class Baganda ride bicycles, there are plenty of good roads along which to ride them ; they are skilful potters and makers of baskets and mats ; and they have a peculiar type of canoe. They have little sculpture and no drawing, but music plays an enormous part in their lives, and they are fond of large orchestral combinations of instruments.

Their political organization was an absolute monarchy, the king ruling through chiefs ; their social organization a system of 36 exogamic totem-clans. It is noteworthy that each clan has two totems, a primary and a secondary. The country was divided into 10 administrative districts each under a chief ; two other chiefs, *katikiro* or chief justice, and *kimbugwe* or chief adviser, completing the number of the king's council. Each district chief held his own court of justice, but appeal always lay to the *katikiro* or the king. The office of chief was not necessarily hereditary, but might be attained by the display of special abilities. A position of great authority was always held by the queen, who was always a sister of the king.

In spite of these remarkable qualities the Baganda seem threatened by decay. During the last fifty years they have been ravaged by civil war, famine, and disease. The massacres of the period immediately preceding the British advent have indeed ceased, but they were followed by even worse scourges in the form of sleeping-sickness and syphilis. The former has

now ceased to be a danger ; the latter is still a very serious one. The birth-rate is seriously affected by it, and the health of the population undermined ; and the conditions of European rule tend rather to spread than to restrict it. This is because the Muganda who is made to work and consequently to earn wages has no motive for marriage ; since the Baganda marry chiefly in order to have a wife to dig and cultivate for them, and if they are not allowed to live in idleness there seems no point in marrying at all ; hence a decline in the birth-rate, increase of unchastity, and corresponding impossibility of checking the spread of venereal disease. •

Before foreign influences affected the Baganda, however, they were on the whole a moral people in sexual matters ; adultery was punishable by death, and the ideal of polygamous marriage was strictly maintained. Prostitution was forbidden, except in the case of the princesses, who were not allowed to marry, but lived in the king's kraal and were placed at the disposal of his visitors. Theft was also a capital crime by native law, and in this case also it is only since European influence brought a relaxation of the rigour of that law that a general demoralization has set in among the Baganda.

The Baganda live in large and often very well-built huts of beehive (dome) shape, sticks being driven upright into the ground and bent over to meet at the top. This framework is strongly reinforced by poles and canes, and then thatched with broad-leaved grass. The thatch is sometimes a foot thick. The houses generally have two doors at opposite sides ; they are surrounded by courtyards and are kept very clean. The interior is divided up by partitions, and draped with bark-cloth hangings ; the floor is often covered with grass. The beds are built up on stakes and surrounded with screens. These huts are now being gradually superseded by brick buildings with corrugated iron roofs.

The Muganda generally builds a separate house for each wife.

Primitive Baganda paganism is now almost extinct, owing to the complete adoption of Christianity by the general

body of the people; the same applies in a less degree to Bunyoro. The Baganda were always inclined to be religious, believing not only in a 'high god', the creator Katonda, whose name has been taken over into the service of Christianity, but in a number of national and clan gods, ghosts, fetishes, and charms. The king was religious as well as temporal head of the nation, and priests and worship generally were subject to his control. Ghosts were believed to require placation, and snakes were venerated, as well as spirits resident in rivers, hills, and trees.

Bagishu .

The Bagishu, also called Bagesu, are one of the most primitive of the Bantu tribes, and are found in the Bukedi district inhabiting the eastern and south-eastern slopes of Mount Elgon. They were once addicted to cannibalism, and still sometimes rob graves for food. They are a numerous people, but very inferior intellectually to the tribes surrounding them. The men are mostly small and badly proportioned, but it is noticeable that the clans who live in the plains adjacent to the Budama border are of finer physique than those who live on the hills. Many of the latter are short wiry men about 5 ft. in height with long arms, small heads, and bearded faces. The Bagishu of the plains are taller men, occasionally reaching 6 ft. in height; their colour ranges from light brown to black. They generally pierce the ears, and among the hill clans some form of ornament is usually worn. Circumcision is practised on both sexes at initiation. They are divided into a number of exogamic clans, each an independent political unit, with its own magistrates.

They are an agricultural people, and live densely in a small and fertile district. Each clan owns a strip of territory running down the Elgon foothills and into the plain, and no clan is permitted to trespass on its neighbours' territory. The Bagishu appear to have lived originally in the caves of Elgon; but though it is true that certain clans keep their caves ready to serve as places of retreat in case of danger,

it is probable that with the increasing security of the district they tend gradually to move down the hillsides into the plain, and will ultimately lose touch with their first home in the mountains.

Clothing is not worn till after initiation ; scarification and the wearing of such ornaments as wire armlets, iron rings, lip-stones, earrings, &c., are common.

As a race the Bagishu are extremely industrious and cultivate their land most carefully, the men working with the women. Their hillsides present a continuous view of terraced gardens which are carefully fenced, the chief crops being bananas, sweet potatoes, and millet. The wealthier Bagishu keep a few cows. But in spite of their symmetrical huts, well-filled granaries, and clean courtyards, they are a lawless, wild, and treacherous people, continually fighting one another and very inhospitable to strangers. Within the clan, however, crime is rare. Every clansman is the brother of every other, and this is a strong deterrent from murder and theft. Adultery is rare and contrary to public feeling, though chastity in unmarried women is not considered necessary. Polygamy is practised, though not general ; if a wife proves barren the marriage is considered as annulled.

Bagishu religion is in a primitive state ; there are no priests or temples, and small shrines are built as occasion requires. Snakes, rocks, and waterfalls are much worshipped. Rain-makers are employed.

Each clan has a number of villages, comprising from 2 or 3 to 40 huts, and governed by an elder. The huts have a circular wall 4 ft. high, surmounted by a conical roof projecting in deep eaves and well thatched. The walls are plastered internally with clay, and the huts are more solid and weatherproof than is usual in Uganda.

Bagweri

The Bagweri live in a narrow portion of territory south of Lake Kioga, bounded on the east by Busoga and west by Bulêmezi. They are practically indistinguishable from the

Basoga, and are very strongly allied to the Baganda, who, when they conquered the country north of Victoria Nyanza, probably left traces of their own blood in the stock of the native tribes. The Bagweri probably reached their present home by a northward move from Busoga, thus representing a reverse tendency from the original southward migration generally ascribed to the Bantu race. They were the first tribe in this region to come under direct European influence, the original British station at Budaka being in their country.

Bakene

The Bakene are a small lake-dwelling tribe situated on the lakes and waterways of the eastern regions, especially Lakes Kioga and Salisbury and the river Mpologoma. They live on the floating sudd, beating down the papyrus stems and building their huts upon the foundation so formed. They are closely related in customs, language, and appearance to the Basoga, and there is a tradition that their ancestors came from Busoga.

Their huts being completely isolated except by water, every man, woman and child is skilled in the management of a canoe; even the children having their own tiny canoes in which they play about and fish.

The tribe is divided into the usual exogamic clans; polygamy is practised and the tribe is fairly prolific. Each clan has its elected headman, whom it consults in cases of crime or dispute; he receives fees for such services, and is given a yearly present of fish or a goat by every family. Theft is most uncommon, and adultery also is rare; it is punishable by a fine. Inheritance is governed by an interesting custom: the deceased's property is divided among the members of the clan, who then choose an heir to whom they give the hut, canoe, and fishing-tackle of the deceased.

Their religion is akin to that of the Basoga. They have medicine-men who diagnose and cure diseases according as they are caused by magic or by a ghost; they believe in various gods and in a water spirit to whom they sacrifice in

order to secure a good catch of fish. Their supreme god has special power over the sky and water, and is invoked in cases of sickness ; he has a temple and a priest.

They subsist by fishing, though a few cultivate plots of land ; the most common methods are the use of rod and line and of large traps made of wickerwork. Nets are also used ; but these will not hold the fish if a woman has stepped over them while they are being made.

Huts are made entirely of papyrus and are more or less dome-shaped ; they contain no furniture but a bedstead, a frame over which is stretched a cowhide or a lacing of papyrus rope.

In physique the Bakene are tall and straight, with pleasant features and slender bodies. Their arms and trunks are well developed. Both sexes knock out the lower front teeth, and women wear the lip-stone. They dress very much like the Basoga ; men in a loin-cloth and cloak, women in kilts, with wire bracelets and anklets.

Bakonjo

The Bakonjo are a hardy and vigorous mountain tribe, inhabiting the south and east flanks of the Ruwenzori range. Part of the tribe lives on the grassy slopes of the Semliki valley and in the district west of Lake Edward.

They live in well-made huts of the Nilotic pattern (circular wall and conical roof), woven out of plantain fibre, with roofs thatched with leaves ; their chief pursuit is agriculture, and their staple food grain, plantains, yams, and sweet potatoes. The mountain Bakonjo are fond of meat and are energetic hunters of many species of game, especially the hyrax.

The only dress worn is a skin hung over the shoulder ; the women wear iron neck-rings and armlets of plaited grass or fibre.

The Bakonjo are a friendly and peaceable race with good standards of morality. Their religion is of a primitive type ; they revere fetishes and charms, and build devil-huts in the neighbourhood of springs. They also worship the dead, but no evidence of a hierarchy of gods has been found.

Balegenyi

This is a very small tribe of some 800 persons, inhabiting a ridge in north-eastern Bugishu. It is a hybrid tribe, containing elements of Bagweri, Basoga, Bagishu, and Mbai stock, and resulting apparently from an original colony of Bagweri crossed with Mbai and Bagishu invaders.

Banyuli

The Banyuli tribe supply the link between the aborigines of the Elgon district and the Basoga. There is a tradition to the effect that Mount Elgon was the original home of the Baganda and Basoga, and that the Banyuli are the result of intermixture between them, as they possess certain characteristics of both tribes. Their own tradition is that they came from the Kavirondo country, or from Lake Victoria, to Bunyuli in Basoga, from whence half of them penetrated north of the Mpologoma river to their present home in Bukedi district. This migration was probably in the nature of a return towards their place of origin under pressure from the Nilotic Kavirondo. In physical characteristics the Banyuli are very similar to the Basoga. Bark-cloth forms the national dress.

Basoga

The Basoga live in the district between Victoria Nyanza and Lake Kioga, on the right bank of the Victoria Nile (Busoga). It was under the rule of Buganda, but previous to its complete conquest by that country it was attached in part to the kingdom of Bunyoro and in part to the Bateso territories.

The Basoga are numerous and docile, with the servile character of people with a long tradition of oppression behind them. They dislike warfare, though fond of theft; and make up in avarice what they lack in courage. They live almost exclusively on vegetables, for though sheep and goats are common in Busoga the poorer natives cannot afford to eat them, using them as they do to pay taxes and to purchase wives.

The tribe is divided into numerous small clans, which are strictly exogamous. In marriage the principals have a good deal of freedom, and when parents are dilatory elopement is common and is regarded as justifiable. Adultery is in certain cases punishable by death, and is proved by a curious ordeal ; more commonly it results in divorce. A dead householder is buried in his house ; a woman or unmarried man in the garden.

The tribal land is owned by the chief, who acts as magistrate for his clan. He generally has considerable plantations of his own, to support his wives and immediate retainers ; the rest of the land is held by the tribesmen. Agriculture is the chief pursuit ; the staple food is plantain, supplemented by sweet potatoes. Millet is grown for making beer. Sesame, yams, and pulse are grown as luxuries rather than as staple crops. Cows are generally kept, and even the peasants try to keep one ; they are a small black or black-and-white breed.

There is not very much hunting, owing chiefly to the density of the population. The hippopotamus is harpooned from canoes ; small game is hunted into nets by beaters and there speared.

The huts are dome-shaped as in Uganda, and divided into a front and a back room. The Basoga wear a bark-cloth loin-cloth, supplemented by a cloak of the same material except when the Musoga is working ; women wear the cloth under the arms, secured by a girdle. By way of ornament the two lower teeth are knocked out—with consequent effects on the phonetics of the Lusoga dialect—and bracelets are worn. Each clan has a large bracelet which is handed down from chief to chief and forms, as it were, his insignia of office.

There is a large group of gods with definite names and functions : Mukama the creator, Gasani, the giver of children, Semuganda the god of death, Nakiwulo the restorer of lost, stolen or strayed property, and so forth. Worship of the dead, however, takes precedence of these gods.

During the last few years Christianity has made great strides, and is now the chief religion of the people. Moham-medanism has a few adherents.

THE HAMITIC-BANTU GROUP

The Hamitic race, examples of which may be found in the Abyssinian, Somali, and Gallastocks (see *Handbook of Abyssinia*, chapter ii), is represented in Uganda by a group of very well defined tribes distinguished both by physical characteristics and by manners and customs from the tribes of the Bantu. They are in all cases pastoral, for the most part exclusively so, their whole social organization being based on cattle-keeping. Thus, their totems are derived from cattle ; their staple food is milk, varied by beef ; wealth is measured in terms of cattle instead of land ; and herding cattle is the chief or only occupation of the male sex. In physical type they are tall and handsomely built, with features of an almost European cast, strongly contrasting with the negro type.

These Hamites, however, never live by themselves in Uganda. In the whole of their country, that is to say in all the strip of plateau bounded to westward by the Rift valley and Ruwenzori, and to eastward by Uganda proper, they form an upper stratum of pastoral nomads which correspond with a lower stratum of sedentary Bantu agriculturists. Such societies are found in Bunyoro in the widest sense of the term (including Toro), where the Hamites are known as pastoral Banyoro and the Bantu as agricultural Banyoro ; in Ankole, where the Hamites are called Bahima or Banyankole and the Bantu Baheru ; and farther south still, in Ruanda, where the Hamitic element is called Batusi and the Bantu element Bahutu.

Of these three Hamitic-Bantu societies only the first and second concern us here ; the third inhabits a district of Tanganyika Territory. We shall, therefore, describe in turn the populations of Bunyoro and Ankole.

In all cases these Uganda Hamites have dropped their original language and taken to Bantu languages.

Banyoro

The Banyoro inhabit the greater part of western Uganda, including the districts now known as Bunyoro and Toro. In general there is a fairly close similarity between the Banyoro and Baganda ; and these two neighbouring peoples both attained a considerable degree of civilization and political efficiency under monarchical rule during the nineteenth century. At one time the Banyoro kingdom included considerable areas in Busoga, Budu, Bulemezi, Kiagwe, Singo, and Gomba, which were afterwards lost to Uganda.

The tribe consists of two quite distinct sections ; the upper or pastoral class, whose occupation is the keeping of cattle, and the lower or agricultural class, who alone till the soil. An intermediate class shares the characteristics of both. The distinction between the two main classes is thus economic, social, and political ; it is also racial ; since the pastoral Banyoro are a branch of the Hima (Bahima), of Hamitic origin and akin to the Galla, who probably at some distant period invaded and conquered a country previously inhabited by the ancestors of the present agricultural caste, and learnt from them the Bantu dialect known as Lunyoro. The distinction may be traced down even to their totems ; the upper class have chiefly cattle-totems (the humped cow, the red cow, the milch cow with calf for the second time, the cow which has drunk salt water, and so forth), while the lower class has agricultural totems (the yam, the empty basket, the wooden spoon, millet, and so forth).

The rule of exogamy is only broken in the case of the royal family, which may marry women of its own clan.¹ But the king's wives are only selected from the pastoral clans.

The pastoral Banyoro are tall and well-built, with finely formed features, and athletic figures. The women, on the

¹ It has been suggested that this custom originated in a distinction in race between the royal clan and the other pastoral clans. If the original royal clan followed the rule of descent through the female line, it would be necessary for the king to marry his sister in order to ensure the succession of his son.

contrary, are excessively obese, owing to a heavy milk diet and a complete absence of exercise, since they never do any work except occasional churning. This obesity is considered essential to good looks in a lady. They also improve their appearance by extracting the lower front teeth. The agricultural clans are shorter and of a much more coarse type, betraying the distinction of race. These clans hunt, which the pastoral Banyoro as a rule do not, since they are not allowed to eat the flesh of wild animals.

The Banyoro monarchy was similar in type to that of Uganda, Abyssinia, and other semi-civilized African states. The king was the absolute owner of the land, which was valued by the upper classes chiefly according to its utility as pasture; he deputed his powers in a given district to a district-chief, who was always an expert in everything connected with cattle. The king's sons and daughters had estates in various parts of the country. The agricultural peasantry lived on the land in the position of tenants at will, supplying their betters with such agricultural produce as they required but paying no regular tax.

All members of the king's retinue and every holder of an official position had a definite title; a highly complicated system of titles thus grew up, and it was considered polite always to employ the title in addressing a person of this clan.

The king and chiefs spent much time in the administration of justice. Punishment was generally by fines, of which one-fifth went to the judge as a fee, the winner of the case taking the remainder. In the case of cattle-lifting the thief had to restore the stolen animals and was fined twice the number he had stolen. A plaintiff at the commencement of a case had to pay a fee of 100 cowries; on appealing to a higher court a fee of 200 cowries was payable. The poison ordeal was frequently employed. Murder was punishable by death; homicide by a fine; suicide by a fine payable by the relatives to the chief on whose land the deed was committed; adultery by death in the case of one of the king's wives, by a fine in other cases, though the woman might be

put to death. Unchastity before marriage was punished by various fines, and an option of marriage was given.

The chief industry of the Banyoro is cow-keeping, an occupation in which all classes share. Cows are valued chiefly for their colour and for bearing cow-calves ; they are separated into herds according to colour and bred with this object primarily in view. The pastoral clans are nomadic, and live in rude kraals of dome-shaped huts which they move from place to place ; they live chiefly on milk, and have curious restrictions on milk-drinking, designed to protect the cows from injury. It would be a serious thing for a cow if a person who had recently eaten vegetables drank of her milk. Cows are treated with great affection and never killed for any reason whatever. The agricultural clans also keep cattle, but not extensively ; they live mostly on millet porridge, the grain being cut in March and stored either in granaries made of basket-work and raised from the ground on wooden frames, or else in underground pits. Beer is the principal drink of all classes ; it is supplied by the agricultural Banyoro.

The importance of cattle has greatly declined owing to the raids of the Baganda, which have forced many of the pastoral Banyoro to fall back upon agricultural pursuits. This has caused widespread social and economic changes in the country ; and it is now rather the exception than the rule to find the strict pastoral tradition maintained by a clan.

The Banyoro have good iron-ore, and are accomplished smiths ; they have special classes of smelters and smiths, and supply most of the neighbouring tribes with spears, knives, hoes, bracelets, and bells. Salt-making is also a great industry among the Banyoro, salt being found in several places and much needed for the use of the cattle. Banyoro black pottery is much valued in neighbouring countries ; and they carve their wooden milk-bowls with some skill and taste.

All Banyoro dress elaborately. The pastoral clans dress in cow-skins, a woman generally wearing three when out of doors, though the men dress more lightly. The agriculturists wear bark-cloth garments. All are fond of ornaments, con-

sisting of metal anklets, beads, elephant-hair necklaces, &c.; they cicatrize¹ their foreheads with distinct clan-marks, and shave their heads in fancy patterns. Circumcision is not practised, either by the pastoral or the agricultural Banyoro.

The religion was undeveloped, though somewhat like that of the Baganda. There were innumerable gods, clans and even private persons having their own particular deities; but certain national gods can be distinguished, such as Wamala, the god of plenty; Ruhanga, the creator; Muhingo, the god of war; Ndhaulá, the god of smallpox; and various cattle-gods. Human sacrifice, though not common, was often employed in cases of national disaster such as the great raids of the Baganda or the Nilotic tribes. On these occasions a child was buried alive in the main road, its head being left above ground. Little attention was paid to the dead, but fetishes and amulets were held in great veneration. The advance of Christianity has, however, greatly altered this primitive condition of things. The same agent has gone far to abolish the Banyoro dances, which were mostly of an obscene character. Banyoro may now almost be described as a Christian country.

Banyankole

In Ankole, as in Bunyoro, an invading Hamitic people of pastoral habits has conquered the Bantu inhabitants and reduced them to the position of an inferior agricultural caste. The Hamitic (Hima) stratum of the Ankole population is often known as Bahima, though they prefer to be called Banyankole; the Bantu stratum is called Bahiru (Bairo), the Hima word for 'slaves'.

The Bahiru call for little comment. They are a typical Bantu agricultural people with no very strong individuality

¹ Cicatrization of the chest and head with a hot iron is universal. It is not always easy to distinguish the medical ground of this custom (as counter-irritant in the case of certain diseases) from its use as a clan-mark as mentioned in the text.

of their own ; degraded by their condition of servitude into a low type ; and moreover far from numerous. They do all the menial work for the Hima class ; building of huts and kraals, transport work, and the supply of beer and vegetables fall to their lot. Their methods of agriculture are exceedingly crude and unremunerative.

The Banyankole are tall and handsome, often over 6 ft. in height, with regular Hamitic features and hair distinctly less woolly than that of a negro. The women, as among the Bunyoro, are habitually fat through indolence and over-eating. The men wear nothing except a skin over the shoulder ; the women are completely clothed in cow-hide mantles. They never wash, but rub themselves with earth and then smear butter on their skins. This takes such a lot of butter that only the rich can do it in a lavish style.

Herding cattle is the chief occupation of the men ; they are skilful herdsmen and devoted to their animals. When engaged on this work they live in rough and temporary grass huts built in a circle surrounded by a zariba. These kraals are generally close to water. Each herd is accompanied by a single large sheep, which prevents the cattle from being struck by lightning.

Women are not allowed to touch the cattle ; they only clean the milk-vessels and do the churning. Milk is the staple food, vegetables being eaten only when milk is not to be had ; rich men eat beef, but only at night and never with milk, nor is it ever cooked otherwise than by roasting on a spit. Milk is preferred fresh.

The king of Ankole is the sole owner of all the cattle, and these are the standard of wealth. In practice, however, private persons are regarded as having a valid title to their herds during their lifetime. The king was elected by the chiefs ; his time was mostly taken up by judicial work. Thus a murderer is generally executed promptly, when detected, by a chief's court ; the king's court has the power to commute the death sentence for a fine.

The chastity of unmarried women is strictly maintained.

A man guilty of rape is fined and made to marry his victim ; if he refuses he is deprived of all his cows, which is the most serious punishment that could be devised. A woman guilty of fornication is absolutely disgraced. Adultery is not so serious an offence ; in fact the laws of hospitality make it obligatory, and it is only considered a misdemeanour in cases not covered by this rule. Among the poor, polyandry is not uncommon.

The tribe is divided into fourteen exogamic totem-clans.

The Bahima are described as being not very religious. They have a supreme sky-god (creator) Lugaba, a ' high god ' with no temple or worship ; a war-god, Zoba ; and clan-gods. Each hut has a place for fetishes. Magic, ghosts, and the transmigration of souls are objects of universal belief ; ghosts live at the sacred lake of Kiagwe, where scolding women are sent to be ' purified ' by bathing and emetics. Charms are believed to be of great service both to human beings and to cattle.

The development of art consists chiefly in love-songs extemporized to the accompaniment of a harp, and incised drawings filled in with white clay on the black daubed interior of the larger and more permanent huts, such as those belonging to chiefs.

THE NILOTIC GROUP

This group includes most of the tribes in northern Uganda. The race appears to have originated some distance down the Nile valley. The Shilluk inhabitants of that region still in all probability represent the original Nilotic stock. From this centre a branch must have moved southward, forming the Achole of Uganda and their various offshoots. One branch, penetrating far ahead of the rest, formed the Jaluo or so-called Nilotic Kavirondo of British East Africa ; but, except for these, the marshes and lakes of the Kioga region seem to have formed an effective barrier to the farther southward expansion of the race.

The Achole remain the principal and typical Nilotic tribe of Uganda. Most of the others are marginal tribes, more or

less affected by the influence of non-Nilotic neighbours. In some cases it is actually doubtful to which race a tribe ought to be assigned; the Teso, for instance, are either a Nilotic tribe with a strong Masai tinge, or a tribe of the Masai race which has strongly felt the influence of Nilotic culture.

In general, the Nilotic tribes are of fine physique, strong though thin, tall, active and warlike, very black and very ugly; they are good cultivators and hunters, and live in well-built wattle-and-daub huts with conical roof thatched in flounces. They have only the most rudimentary political ideas, being impatient of tribal or other organization and paying little respect to their chiefs. They have, in fact, a strongly individualistic turn of mind. They wear few or no clothes, but make up for the deficiency by a lavish indulgence in ornaments such as iron wire armlets, lip-stones, and ornamental coiffures.

It is noteworthy that the system of exogamous totem-clans appears to be little developed among the Nilotic tribes. Their artistic sense, on the other hand, is well developed.

Achole

The Achole, or Gany,¹ are a large and important Nilotic tribe inhabiting the region north of Fajao and Lina, and east of Wadelai and Nimule. They are a tall race of fine physique, active and energetic in body, cheerful and by no means unintelligent in mind. They are quick to learn, especially up to the age of 18 to 21, after which their power of assimilation declines, as is often the case with African natives. In youth, however, their mental powers are above the average. This mental activity is illustrated by the fact that the Achole have much more art than most of their neighbours; they have an innate love of decoration, which leads them to adorn their axe-hafts with carving and their knife-handles and sheaths with brass and tin inlaid. More remarkable is the fact that they make drawings of animals and human beings on the

¹ Monosyllable, ending in 'palatalised n'. To pronounce, say some such word as 'Ganyo' and then leave out the o.

clay walls of their huts ; also of such objects as the sun, moon, and stars. An antelope's head is often drawn on the door of a hut. Dancing is much more highly developed than among most of the Bantu tribes.

Their personal ornaments are elaborate, and include iron wire armlets and bracelets, worn extremely tight ; a tight metal girdle ; the lip-stone, almost universal among young men ; elaborate coiffures for men, taking the form of a hair cone on the summit of the head, about 4 inches high and covered with ornaments ; brass armlets and bead necklaces for girls ; and a belt with tails for married women. Old men discard ornaments altogether ; but young men who wish to present a very striking appearance paint themselves a brilliant scarlet with red ochre, using rancid butter as a medium. Hunters wear sandals, made of elephant hide if possible, otherwise of buffalo, giraffe, &c.

They are an agricultural and hunting people. They have a large variety of crops, including several varieties of millet, sesame, ground nuts, maize, sweet potatoes, beans, &c. They hunt a great deal, and have no scruples as to the kinds of meat which they may eat. Their agricultural implement is the long (four-foot) hoe, contrasting strongly with the short hoe of the Bantu.

Their huts are well-built and weather-tight, with circular wall (wattle and daub) and conical roof thatched in flounces. The huts generally have a partition on the left side (as seen from entrance) in front of which the sheep and goats are confined, with a wood loft overhead, while behind it is the bed, consisting of a hide stretched on the ground. The fire-place is a T-shaped trench 8 to 10 inches deep, cut in the floor ; the cooking-pots are stood at the junction of the arms. The general good quality and solidity of these huts are remarkable. They are built in circular villages surrounded by a strong euphorbia hedge or stockade of stout poles.

The Achole are polygamous ; the sexes have a considerable degree of social equality, the men working in the fields with the women. Bachelors live in huts raised off the ground,

for the sake of their morals ; in some cases the lower part of such huts is fenced round and used as a sheep-pen. In spite of this care, some authorities report that their standard of sexual morality before marriage is very low ; but a careful and competent observer states that intercourse of this kind is only allowed to engaged couples.

Adultery and theft are punishable offences ; though the Achole have a great reputation for theft outside the limits of the tribe.

They are a warlike people, and are generally fighting their neighbours.

Achole religion is rather vague and not very powerful. They build little devil-huts and sacrifice to snakes and to rock-spirits ; and they have a certain number of fairly definite gods—Angodo, a beneficent spirit ; Omodogagi, generally malevolent ; Adude, a night-walking enemy of mankind, who, however, on occasion appears to cure diseases.

The Achole are generally considered the parent stock of all the Nilotic tribes in Uganda and British East Africa.

Badama

The Badama live in that part of the Bukedi district known as Budama. They are practically the same race as the Nilotic Kavirondo, inhabiting the shores of Lake Victoria in British East Africa ; and their tradition is that their ancestors formed part of a large horde of Achole, who left their home owing to famine, and travelled southwards. They are a tall race, and uniformly black in colour. In former years they had a great reputation as warriors and were, together with the Bagishu hill tribes, more or less unmolested by the Baganda.

Bari

The Bari live in the north-western portion of the Nile province, and appear to have come into existence within comparatively recent date, being a blend composed of various families from the Mundari, Fajallu, Lokoya, Dinka, and

Berri who, migrating from more thickly populated districts, settled on the barren strip of soil which the Bari now occupy. They are of typical Nilotic physique and do not practise cicatrization or circumcision. Polygamy is general, and their morality is of a low order. They are avaricious and lazy, they lack initiative and are slaves to procrastination, incapable of sustained effort, quarrelsome, sulky, and cunning. Their word cannot be trusted, but they are brave and fairly good agriculturists.

It is a remarkable fact that unmistakable resemblances have been traced between the Bari language and languages of the Masai group. This is generally thought to throw some light on the origin of the Masai. Teso appears to supply an intermediate step between Bari and Masai.

Kumam

The Kumam, who are closely allied to the Lango and Miro tribes, are to be found along the northern shores of Lake Kioga in the Lango district of the eastern province. Their language shows the influence of the Teso people, who, however, are quite different from them in other respects. According to tradition they appear to have come from the Achole country, to the west and north of Lake Salisbury, and to have been gradually pushed southwards to their present place of settlement. The Kumam people are not such a virile race as their neighbours, the Lango and Miro. They wear practically no clothing except in the case of the older men, who formerly wore robes of skins tied on their shoulders like the Banyoro. Both sexes wear strings of large and small beads round the neck and waist, and pierce both the upper and lower lip for the insertion of strings of beads. The Kumam, like the Achole, draw pictures on the walls and doors of their huts.

Latuka

The Latuka are the northern neighbours of the Achole, and live on the plateau east of the Nile about the latitude of Gondokoro. They appear to have been little studied, and

information in detail is almost entirely lacking; but it would seem that they are a Nilotic people with Masai tendencies, like their western neighbours the Bari. Their huts, with high and steep-pitched roofs thatched in flounces, are of the Nilotic type; their language—about which, however, little is known—seems to have Masai characteristics. They have been influenced by Arab culture, and have adopted Arab dress to a certain extent; their chiefs are said to speak Arabic habitually. A recent writer describes them as not numerous, and as famous for their brass helmets, locally manufactured.

The Latuka have for the most part adopted the Moham-medan faith.

Lango-Miro

The Lango¹ and Miro, two closely related tribes, are found in the north-western portion of the eastern province known as the Lango district. They are in many respects similar in character and habits to the Achole. The Miro, who are sometimes called the Northern Lango, seem to have come from the direction of the Assua river, near Eruti Hill, and to have moved south in periodic waves, the last of which took place about 25 years ago. On reaching the shores of Lake Kwania they came into direct contact with another allied tribe, the Kumam, who have already been described above.

Both Lango and Miro people are well-built and tall, the upper part of the body being better developed than the lower. As a rule their features are good, but degraded types are to be seen amongst them. They are independent and impatient of control, but are cheerful and good-natured. The Miro are renowned fighters, and much feared by their neighbours. Both tribes are easily excited and their quarrels often lead to bloodshed. In former days they wore no clothing, except an occasional goat-skin, but since the introduction of trade goods the more important of the inhabitants have taken to cotton garments. The Miro are much addicted to ornaments,

¹ The 'ng' in Lango is pronounced as in 'hanger', not as in 'anger'.

wearing coils of brass wire round the neck and arms, also occasionally round the ankles; they also wear beads round the waist and forehead. Brass rings and blue beads are sometimes inserted in the nose and ears. Also the Miro, round Donkolo in the south-east, wear a heart-shaped disc which has not been noticed elsewhere. Both the Lango and Miro are said by some authorities to have little or no sense of sex morality, and it is customary for a girl to have illicit connexions before marriage, and frequently to leave her husband and have relations with other men after marriage. On the other hand, the Achole 'Bachelors' hut' is universal in these tribes. The Lango women are fairly prolific, and the race is strong and healthy. Their staple food is millet, and they grow large quantities of vegetables, including sweet potatoes. They even grow sesame for export; this is shipped to Marseilles and used for making oil. The Lango are keen hunters both of antelope and elephant, and they use both spears and traps, and large assemblies for hunting take place every year in the dry season.

Their villages in general resemble those of the Achole.

Mbai

A small tribe inhabiting a part of the north-eastern slopes of Mount Elgon, from Kigule to Sebei. By origin, habits, and language, they are closely akin to the Nandi and possess many points in common with the Suk. There is considerable intercourse between the Mbai and the Suk and between the Mbai and Balago living near the Uganda border in the Mumias district. In fact, they are a colony of Balago-Nandi who crossed to their present home from East Africa not more than 50 years ago, travelling by way of the well-worn tribal path along the edge of the Elgon crater.

The Mbai men are the handsomest natives in the district. They are not tall, but their physique is fine and their movements graceful. In colour they are a reddish-brown. The women are extremely plain and are inferior to the men in cleanliness and appearance. It is customary for the young

men to have their heads plastered with red mud and they wear a dressed hide, hung from the shoulder, and embroidered with beads. The women do all the hard work, the men being chiefly occupied in hunting game.

The Mbai are called 'Batwa' by the Bagishu, but the Batwa proper are a race closely allied to the Mbai, who inhabit the upper slopes of Mount Elgon between 9,000 and 11,000 ft. and subsist chiefly on rats and other small mammals and honey.

Madi

The Madi, who inhabit the banks of the Nile from Nimule to Gondokoro, are a typical Nilotic tribe. Their skin is jet black and neither sex wears clothes, but they are fond of ornaments in the way of bead and ivory girdles, and many of the people pierce the lower lip and insert a piece of quartz. As a race they are fairly intelligent and brave; they are generally at war with the Achole. They are polygamous and pagan, and like their northern neighbours, the Bari, are full of superstitions and strong believers in witchcraft. The belief in the haunting of widows has been observed among them.

Their huts are small (8-9 ft. in diameter) and very poorly built. They suffer much from the unhealthiness of the district in which they live, some villages being literally riddled with guinea-worm. Villages are surrounded by a deep ditch, as a defence.

THE MASAI GROUP

The Masai, Nandi, Turkana, Suk, and Karamojo form a well-marked racial group inhabiting parts of East Africa and Uganda. We do not propose to go into the question whether they are rightly considered as a branch of the Hamite race or a cross between the Hamite and the Nilotic. A fuller discussion of their general characteristics will be found in the *Handbook of Kenya Colony*. In this volume the Turkana and Karamojo alone concern us, together with the Teso, whom we provisionally assign to this group.

Turkana

The Turkana inhabit the arid and little-known country to the west of Lake Rudolf, and extend south-west over the mountains and valleys to the district immediately north of Elgon, where the stock is represented by the Karamojo tribe. They are a gigantic people and are said to be the tallest race in the world, the men in some districts averaging 7 ft. in height. They are easily distinguished from other tribes by their hair which they wear in enormous chignons. After death a man's hair is cut off and woven into his son's chignon, increasing in size and length till it hangs down the back as far as the waist. They wear no clothes at all and practically no ornaments. They pierce the lower lip and insert a porcupine's quill, or the long sharp tooth of some beast. The Turkana do not circumcise. They are generally turbulent and impatient of control, and have caused a good deal of trouble to European administrators. They are great hunters, and are said to trap even elephants with leather snares. Their weapons include spear and circular wrist-knives. They live mainly on the products of their flocks and herds, and also on fish from Lake Rudolf and neighbouring swamps.

Karamojo

This is a more peaceable tribe than the Turkana, addicted to agriculture and commerce. They wear a kind of chignon, and are racially not very different from their northern neighbours. Some authorities, however, consider them a cross between the Turkana-Masai race and the Nilotic negro. But their language has Turkana affinities, and their huts are not of the Nilotic type.

*Teso*¹

The Teso are a tribe of fine physique living in the region known as Bukedi ('naked people's country', so called by the Bantu on account of the nudity of the inhabitants. They

¹ The form Bateso is a hybrid, a Bantu inflexion of a non-Bantu word, and should be rejected

are tall and rather handsome both in face and figure ; they do not intermarry with Bantu tribes and in consequence their stock is pure. They are quiet and inoffensive, unwarlike, and not given either to violent crime or to severe punishments. Murder alone is punishable by death ; adultery by fine ; both crimes are rare. Young girls may do what they like, but married women are strictly chaste. Inheritance goes by primogeniture.

The Teso are divided into exogamic clans, and polygamy is usual, betrothal taking place in infancy. Widows become the wives of the heir.

The huts are circular, with a four-foot wall and a conical roof. They resemble Achole huts, but are less strongly constructed. The thatch is neatly arranged in 'flounces', and the summit of the centre pole is carved or ornamented with an animal's horn. Each wife has a separate hut ; and thus one man's family may occupy a whole village to itself. Villages are always surrounded by a euphorbia hedge, which makes a very strong line of defence ; they are supplied with gateways solidly built out of heavy logs. The Teso build granaries either of wickerwork or of mud reinforced by a core of hay rope, and raised on platforms.

Agriculture is the chief pursuit, and millet porridge the staple food. Sweet potatoes, maize, sesame, beans, and marrows are also grown to supply a change of diet ; they dry potatoes, cut into slices, for storing. A good deal of beer is drunk, and mutton is eaten freely. There is little hunting, but they are fond of rats, which they make into a stew.

No clothing is worn, but both sexes adorn themselves lavishly with beads, shells, nose-rings, lip-stones, tongue-rings, bracelets, anklets, &c. They sometimes wear a chignon like that of the Karamojo. The Teso religion is crude ; they have a god, Edeke, who appears to be generally malicious and in need of propitiation ; otherwise worship is almost entirely restricted to ghosts and the dead.

The Teso are remarkable for their cheerful and friendly disposition, a contrast to the servility of many Bantu and the

reserve of some Nilotic peoples. They are industrious, cleanly, and efficient workers, and are much given to dancing of a religious or bacchanalian type.

Certain authorities regard the Teso as a Nilotic tribe (cf. Roscoe, *The Northern Bantu*) ; but they appear to be more properly considered as a member of the Masai group. Their language has affinities with Masai, Bari, and Nandi ; it has words in common with Karamoja and Turkana.

The political organization of the Teso is comparatively advanced ; they appear to have worked out a fairly complete system of government by sub-chiefs and taxation.

They number 270,000

NATIVE EDUCATION

In Uganda there are as yet no Government schools and the education of the natives has so far devolved on the Church Missionary Society, the White Fathers, and the Mill Hill Mission. Quite recently the Italian Mission of Verona has entered the field. The Government, however, makes an annual contribution of £1,250, which is allocated as follows :

Church Missionary Society	. . .	£850
White Fathers	. . .	£300
Mill Hill Mission	. . .	£100

It is estimated that the total number of pupils receiving instruction is approximately 50,000. The bulk of these receive instruction of a primary kind either in schools at mission stations where education is under European control or at more primitive village institutions under a native teacher. At these schools, besides the usual general elementary subjects, instruction is given in useful crafts and in the planting of native crops. Instruction of a more advanced kind is given at various boarding and other higher grade schools. In these schools, which are patronised to a large extent by the sons and daughters of chiefs and other natives of superior rank, the curriculum is adapted to the needs of those who desire

afterwards to qualify for the lower administrative posts, chiefly in Buganda and in the Western Province, or as assistant clerks and time-keepers in the service of commercial undertakings.

Possibly the most important feature of educational life in Uganda is the attention devoted to manual and industrial training. For many years now the Missions have, in connexion with the satisfaction of their immediate and private needs, taught carpentering, brick-making, masonry, building, weaving and other crafts, and also agriculture. But with the development of Uganda industries, notably the cotton, coffee, and rubber cultures, and the introduction of mechanical transport, specially equipped schools in which instruction in mechanical affairs and in scientific agricultural methods are provided have been instituted by the various missionary societies.

One of the great difficulties of carrying on educational work in Uganda has been the lack of an adequate teaching staff. This has been remedied to some extent by the establishment of several Normal schools for the training of native teachers.

Education has made greatest headway in Buganda, and in this province the Church Missionary Society has 328 elementary, with 5 central day schools, while the White Fathers maintain 19 central station and 16 rural schools. In the Western Province the Church Missionary Society has 34 elementary schools and there are also 5 central station and 5 rural schools controlled by the White Fathers. The Mill Hill Mission has concentrated on the Eastern Province where it maintains 16 central station and a large number of rural schools. To this region also the Church Missionary Society has extended its labours and is responsible for 24 elementary and 2 central schools. In the Northern Province educational endeavour is largely confined to the Banyoro for whom the Church Missionary Society principally, and also the White Fathers, have instituted schools for elementary instruction. A pioneer effort has lately been inaugurated by the Verona

Mission in the comparatively undeveloped districts of this province.

The three chief missionary societies all maintain institutions throughout the Protectorate for general education of a secondary character for industrial and technical training, and for the training of native teachers.

CHAPTER VIII

SANITARY CONDITIONS

Diseases of Europeans—Native Diseases—Snakes, &c.—Hospitals.

THOUGH Uganda has no considerable areas which can rival the better parts of the British East Africa in healthiness, it is not on the whole an unhealthy country. The Nile valley and immediately adjoining districts are indeed extremely unhealthy, and the same may be said of the various lake-shores round Victoria Nyanza, Kioga, and Albert. On the other hand, the western province as a whole, and especially Toro and Ankole, are perfectly healthy; the Buganda province somewhat less so; and the eastern districts in general must be described as unhealthy.

This is due chiefly to the distribution of sleeping-sickness, malaria, and blackwater fever. Sleeping-sickness (now almost extinct, see below) haunts the margins of the lakes, but is found nowhere else. Malaria is pretty general in all the lower districts, but both less common and less severe in the west than elsewhere; while at Fort Portal and similar altitudes it seems never to occur at all. Blackwater fever is especially rife in Busoga and the east generally; it hardly ever appears in Buganda and never in the Western Province. In the eastern province, in fact, the only quite healthy region is the foothills of Elgon.

DISEASES OF EUROPEANS

Malaria, as we have observed, is to be found all over the Protectorate except at high altitudes. In Toro it is not common however, and in Buganda it is not of a very serious type. In Busoga and the east generally it is much more severe and difficult to avoid, its peculiar severity here being

due to the danger of blackwater fever. It is not yet known whether this disease is a mere after-effect of the African type of malaria (for it is unknown in, for instance, the Indian type, which is otherwise undistinguishable); or whether it is a distinct infection; or whether, as has sometimes been supposed, it is due to an overdose of quinine taken during an attack of malaria. In any case, it is a disease to which Europeans residing in the less healthy parts of Uganda are very liable, and since it most frequently attacks people in a low state of health, suffering from fatigue and overwork, and never those who have been less than eighteen months in the country, it can be to some extent guarded against by general care of the health, avoidance of excessive fatigue, and proper attention to periodical change of scene.

In Buganda and the west, blackwater fever is almost unknown. There are, however, certain places where it has been known to occur from time to time, owing probably to some special local condition; one of these is Kampala and its immediate neighbourhood.

Relapsing fever is now much less common than it was formerly; this is due to the provision of rest-houses for the use of Europeans, which are kept free from the inroads of ticks. Persons who make use of these rest-houses and avoid sleeping in native huts are practically secure from infection. Outside the borders of Uganda, on the other hand, as for instance in Ruanda, relapsing fever abounds.

Dysentery of the amoebic variety is somewhat common; but this again can be avoided by taking reasonable precautions. It is almost always due to drinking contaminated water in the neighbourhood of native villages; by boiling water and by selecting drinking-water as far as possible from inhabited sites the danger may be completely avoided. Bacillary dysentery appears to have been introduced in the course of the war; the same precautions suffice to guard against this variety of the disease.

Europeans are not, as a rule, affected by the various skin-diseases (scabies and so forth), sores, &c., to which the natives

are liable. On the whole, the European resident in Uganda is singularly free from tropical diseases, and may, with ordinary care, live a perfectly healthy life. The chief danger to which he is exposed is that of malaria ; and this may be greatly diminished by the proper use of quinine combined with vigorous measures, offensive and defensive, against mosquitoes.

NATIVE DISEASES

Sleeping-sickness, formerly a source of serious danger in the Protectorate, has now been restricted within very narrow limits. This has been done by removing all natives from the shores of the lake and from the islands. The breeding-place of the tsetse is at the water's edge, and it seldom travels far ; consequently it is possible to live in almost complete safety at a distance of a mile or two from the lake. A trench has been dug at two miles' distance from the water's edge, beyond which natives are not allowed to pass except at certain places such as Entebbe and Jinja, where special precautions are taken. The result has been a complete and brilliant success ; cases of sleeping-sickness have almost entirely ceased to occur. Whether it will ever be possible to bring the population back to the lake depends on the accomplishment of at least one of two conditions : the extermination either of the tsetse or of the trypanosome. With regard to the former condition, it is said that a visit to the Sese Islands, undertaken in 1918 with a view to determining the frequency of tsetse, resulted in the discovery that it had to a very great extent disappeared, and was only present in extremely small numbers. This, it is suggested, was due to the severe floods of 1916 and 1917, which by swamping the breeding-grounds of the tsetse greatly reduced their numbers. No artificial means, however, have as yet been discovered of exterminating these insects ; the burning of bush and grass appears to leave their breeding-places untouched.

With regard to the second condition, it is not yet known whether the trypanosome of sleeping-sickness can complete

its life-cycle without passing through the human body. If it is unable to do so, then in the temporary absence of human beings it is bound to perish ; but it is possible that it can equally well propagate itself in the bodies of animals, like the parasite which causes animal trypanosomiasis ; and in this case it cannot be expected that the micro-organism will become extinct in Uganda for a long time.

It may be remarked that though the danger of sleeping-sickness appears to be confined to the lake-shores, there are ' fly-belts ' in other parts of the country where animals may become infected with trypanosomiasis.

The severity of sleeping-sickness as a scourge of this district is thus a thing of the past ; partly through the isolation of infected areas, partly through the discovery of a treatment (injections of tartar emetic, repeated every two days or so for as many weeks as necessary) which is capable of curing even the most severe forms of the disease.

At present the chief menace to the health of the native is to be found in venereal diseases, of which syphilis is exceedingly common all over the country, and produces the most disastrous effects. In some parts of the country the death-rate is distinctly in excess of the birth-rate, a fact which competent observers ascribe entirely to syphilis (e. g. in Bunyoro). The effect of this disease may be seen not only in a very high infantile mortality, but even more in a diminution of births owing to enormous numbers of miscarriages. Thus at Kampala cases are frequently met with whose history shows a series of from five to seven miscarriages due to syphilis. The same effects are produced by gonorrhoea, which is hardly less rife than syphilis. Thus venereal diseases present a very grave problem for the future of the native races of the Protectorate.

Bubonic plague is endemic in the country ; it appears to be especially localized at Kisumu in British East Africa, from which neighbourhood it spreads into Uganda. It primarily affects the Indian inhabitants ; for the native huts are on the whole not haunted by rats owing to their construction, and European houses are kept free of them.

Indian itinerant traders are thus the means by which the disease is generally spread ; and this accounts for the fact that an outbreak such as that of 1916 occurs simultaneously at a number of widely-scattered places.

Cerebro-spinal meningitis is endemic, and cases occur sporadically all over the country ; the incidence of the disease was increased by war conditions.

Tuberculosis and—contrary to a view often expressed—cancer are both fairly common among natives.

Severe epidemics of small-pox have occurred recently ; there were two bad outbreaks in the years 1915–17. The mortality during these epidemics was high, amounting to 25 per cent. or more of the cases. There is no attempt, in general, at systematic vaccination of the population ; on these occasions a good deal of vaccination was undertaken, but without success, as it appears that the lymph supplied was defective.

A severe epidemic of influenza took place in the autumn of 1918 ; before that date it was unknown.

SNAKES, ETC.

Snake-bite is not a serious danger. Poisonous snakes exist in the country, but in practical experience the number of snake-bite cases met with is very small, and those which occur are mostly due to extreme negligence. Jiggers are, of course, known ; and there are various minor pests such as the minute embwa fly, which infests the northern and eastern provinces.

HOSPITALS

The Church Missionary Society hospital at Namirembe (Kampala) has 200 beds and is a well-equipped establishment with brick buildings and cement floors. It contains a special Indian ward (St. Thomas's), and an annexe, the Annie Walker Memorial Hospital, for the use of European patients. It is supplied with X-ray installation and electric light by a dynamo driven by a paraffin oil engine. The average staff

consists of two doctors and four ladies, assisted by native boys trained to act as dressers, to prepare the theatre, to carry out minor operations, &c. This staff is quite inadequate to the demands on the hospital, which habitually deals with 2,000 in-patients and 25,000 out-patients in the course of a year. During the war the annual number of in-patients rose to twice the normal figure.

The hospital is supported by voluntary contributions collected in England and by the fees of European and Indian patients.

The Toro Hospital at Fort Portal has 100 beds and a normal staff of one doctor and two nurses.

There is a hospital of 20 beds at Iganga, in charge of a lady (unqualified).

Branch dispensaries exist at Mityana, Mokono, and Ngora (Bukedi); there are also Government medical officers at Kampala (2), Jinja, Entebbe, Mbarara, Toro, Masindi, and Lira.

There are Government hospitals for European patients at Entebbe and Jinja. The Government also provides facilities for the medical treatment of natives and Asiatics at Butiaba, Entebbe, Gulu, Hoima, Jinja, Kampala, Kitgum, Lira, Masaka, Masindi, Mbale, Mbarara, Namasagali, and Soroti.

CHAPTER IX

RESOURCES

Agriculture—Agricultural products—Forest products—Live stock—Animal products—Fisheries—Mineral products.

AGRICULTURE

WITH the exception of the arid northern regions and the pastoral country of the south-west, the greater part of Uganda is well adapted to agriculture. In Buganda, Toro, and the southern part of eastern province, which are the most fertile districts, the soil is rich and the rainfall ample and regular. The savannahs of Buganda and Toro, when cleared of the elephant grass which still covers a large part of their surface, make good arable, a considerable proportion being suited to coffee. In the hot moist regions bordering Lake Victoria, rubber and other tropical products flourish; whilst the Busoga district is one of the chief sources of the world's supply of small chillies.

Apart from the purely pastoral tribes, whose chief wealth is cattle and who live mainly on meat and milk, the native population falls into two classes. These are first the grain and vegetable eaters of the north and centre, whose land is largely devoted to the growing of millet and similar food-stuffs, and secondly the banana-eaters of the damp, rich country lying near Lake Victoria, who depend for the staple of existence mainly on the produce of their banana-groves. These heads cover the primary food resources of the country, and a partial failure in any of them entails severe privation. Such failure is now to some extent guarded against in millet districts by the encouragement of storage crops such as sesame and ground-nuts, and in banana districts by the extensive cultivation of sweet potatoes. All these are good stand-bys for years of dearth.

The greater part of the agriculture still consists of native food-crops, the area taken up by Europeans being so far insignificant. The chief agricultural regions are Bukedi and Busoga, where one-fifth of the surface is cultivated, Teso and Lango (one-ninth) and Mengo (one-tenth). In the areas from which returns are available, 2,670,445 acres were under native cultivation in March 1917. In Buganda and Busoga, where banana-groves occupy more than half the tilled area, bananas and sweet potatoes are the staple crops. Small quantities of mpindi (white pea) and wimbi are also grown as reserve foods, and sim-sim (sesame) and ground nuts in Busoga. In the remainder of Eastern Province millet (wimbi) takes the first place, ascending in the Elgon district to 7,000 ft. Sim-sim and ground nuts are grown on the plains. In Toro the soil yields heavy crops of banana, sweet potatoes, wimbi, and beans. Smaller quantities of maize, manioc, ground nuts, sim-sim, peas, and large millet (for beer) are also produced. On Ruwenzori above the banana line (6,000 ft.) the tuber *Colocasia antiquorum* is grown for food. In Ankole, beans and peas are staple crops. Efforts are being made by the agricultural department to encourage rice, cassava, ground nuts, and wheat in suitable districts, but so far these are only produced on a small scale. Native tobacco is grown everywhere and is an important article of local trade.

The chief native money-crop is cotton. This was first exported in 1904-5, when 180 cwt., valued at £236, were placed on the market. Its cultivation increased rapidly, and it has become in the last ten years the most important product of Uganda. In spite of the severe check to its development caused by the war, it has undoubtedly a great future. In 1916-17, 129,803 acres were planted. The exported crop, though it was the poorest on record and much stained, fetched £348,914, as against £49,596 in 1909-10. Cotton is fostered and directly controlled by Government, which distributes the seed, and by a series of ordinances, culminating in the Uganda Cotton Rules of 1913, regulates the management and marketing of the crop. Many native instructors

sent out by the Agricultural Department are at work, teaching the best methods of cultivation and harvesting. Only the American upland long stapled varieties are sown. The lint ranks between the qualities known as 'middling' American and Egyptian 'fully good fair'. The best cotton districts are the plains of Teso and Bukedi, where the many arms and waterways connected with Lake Kioga give ample irrigation to the deep sandy loam. The crop is mostly grown in small plots by individuals; in Teso every native is said to have at least $\frac{1}{4}$ of an acre under cotton. This method is no doubt wasteful; but the expense and difficulty of European supervision, essential on large plantations, is avoided. Most of the chiefs have big holdings, and are keenly interested in the development of the industry. Coffee and rubber are also grown extensively by the chiefs, mainly in Buganda; but the poor yield and price of coffee during the last few years has discouraged the natives and many of their plantations are now neglected or abandoned. The part played by Government in the development of native agriculture is an important one, and the educational machinery of the Agricultural Department is more fully organized than in Kenya Colony.

A few years ago only the most primitive methods were in use. Most of the field work was done by women, ploughing was unknown, and the short hoe was the only tool in common use. Native travelling instructors are now trained on the Government plantations, and specialize in crops suited to their own districts, to which they return when trained. They are controlled by European inspectors attached to the Agricultural Department. The system is popular, and under it new crops and modern methods have been gradually introduced. Many of the chiefs are keen and intelligent farmers, especially in Teso, the most progressive agricultural district. Ploughing schools have been a success in Eastern Province, and the Teso chiefs alone now possess over 100 ploughs. The importance of this movement for the future prosperity of the Protectorate, and its development as a source of raw material, is obvious when we recollect how few regions

of Uganda are really suited to European settlement and how closely the future of the country is therefore bound up with the economic advancement of the native and his adaptability to modern methods. The conditions here are totally different from those which obtain in the highlands of East Africa, where white settlement and general farming of European crops are possible.

Turning now to European cultivation, it seems probable that a considerable range of tropical products could be successfully grown in Uganda were the problems arising from labour and difficulties of transport and climate solved. At present, however, it cannot be said that the hopes of the first settlers have been realized. From the European point of view, Uganda is not a farmer's, but a planter's country; and even so, the area in which estates can be run under European management, and the choice of profitable crops, is limited. The favourite district is so far the tropical belt near Lake Victoria, especially Mengo, which contains the largest number of plantations. Busoga was for a time regarded as a favourable region for coffee; but the difficulty of feeding large gangs of labourers off the country, and poverty of markets, has hindered its development. East and central Toro, with a rich soil and healthy climate, is believed to have a promising future, and 19,000 acres have lately been taken up by European planters for coffee.

In 1917 there were in the Protectorate about 150 European estates, exclusive of mission plantations, with from 100 to 2,000 acres in cultivation. The only crops which have yet proved commercially profitable in them are coffee and rubber, though cocoa, still in the experimental stage, is promising. All these are slow-maturing plants, coffee taking 3 years and cocoa 5 to come into bearing, whilst Para rubber, which can be tapped in the fifth year, does not give its full yield till the eighth. Uganda therefore has nothing to offer settlers who do not possess considerable capital. It is generally estimated that £20 per acre is needed to bring rubber or cocoa into full bearing, £15 for coffee. Where coffee is planted as a catch

crop between rubber, and the proceeds used to lessen capital expenditure, the cost is appreciably reduced. Plantations under 250 acres in area are not advisable.

Para rubber has now proved itself the most paying crop for planters, especially in Kiagwe, which contains the oldest plantations and has the heaviest rainfall in the Protectorate. It also does well in Busoga and Masindi. The latex is of good quality, comparing well with plantation rubber from the East, and since the trees came into yield has practically driven the wild forest rubber from the market. It must be remembered, however, that Para rubber has never yet proved a real success in Africa, mainly on account of the difficulty in obtaining sufficiently expert native labour.

As regards acreage, coffee is the principal European crop, and until 1913 was extremely successful. In that year, however, the 'coffee-leaf disease' appeared in the lake area in a virulent form, and when it passed was followed by other pests, greatly reducing the yield of the trees. It was also found that *Coffea arabica*, which had been generally planted, died after a few years in the hot damp regions near the lake. Transport difficulties, high freights, and restricted exports during the war, further helped to damage the industry. Encouraged by the excellent results of planting coffee at high altitudes in British East Africa, settlers are now taking up land for this purpose on the higher ground at a distance from the lake, e.g. in Toro. There is also a tendency to replace *C. arabica* by the more hardy and prolific though less palatable *C. robusta*, which is already much used as a catch-crop in the rubber plantations.

Reviewing the agricultural resources as a whole, we observe that beyond the staple native food-stuffs—millet, bananas and pulse—the land is capable of producing numerous economic crops. Of these, cotton is probably the most important, and may be said to have an assured future; whilst that of the principal tropical products—rubber, coffee, and cocoa—is still to some degree in suspense. Four valuable oil-seeds—sim-sim, ground nuts, cotton seed, and castor oil—grow

luxuriantly, and are possible sources of future wealth. Other possibilities for the future are sugar and upland rice, both of which have been grown successfully on a small scale, and tea, which has been for some years the object of careful but inconclusive experiments.

The following tables, which are made up to March 31, 1917, give the acreages of the principal native and European crops and the development of the main exportable products :

AGRICULTURAL PRODUCTS

(in alphabetical order)

Bananas or Plantains

This is one of the most important native food crops. The banana groves are found in rich soil in the savannah region ; ascending to 6,000 ft. They occupy over 500,000 acres in Buganda alone, comprising six-sevenths of the cultivation in Masaka, and about two-thirds of that in Mengo and Entebbe. In eastern province, bananas fill half the cultivated land of Busoga, and cover a great area on the foothills of Elgon (Bugishu) but here the climate is not sufficiently warm and moist for them. In Bunyoro they are little understood and poorly grown. In Ankole they are chiefly used for beer. Bananas are the staple food of the Baganda and Basoga, and planters taking up land in these districts should at once put them in, as they will then be able to feed their own labour—otherwise a hopeless task. The natives are said to distinguish over 200 varieties. Three classes are grown. The *toke*, or female banana to which most of the varieties belong, is used for eating. It is cut when green, cooked, and served mashed. The *M. bide* or male banana, never eaten, is used to make plantain-beer, the national drink. It is cut ripe, mashed, and the juice fermented with millet. The *gonja*, or sweet banana, is eaten raw as a fruit, or sometimes baked green as a delicacy. Several improved sorts for European consumption have been introduced. Bananas are propagated by side-shoots and

NATIVE AGRICULTURE (MARCH 1917)

Acreege of Crops

ct.	Beans.	Chillies.	Coffee.	Cotton.	Bananas.	Dhal.	Cassava.	Indian Corn.	Simsim.	Millet.		Rubber.		Ground Nuts.	Sweet Potatoes.	Vegetable & Various Crops.	Total Acres under Cultivation.
										Mata-ma.	Wimbi.	Para.	Other.				
300	25	3,000	20,000	390,000	20	100	200	4,500	150	150	1,000	1,000	30	1,750	180,000	220	602.1
312	10	2,532	2,475	29,031	11	2,285	240	155	8	5	159	48	12	112	2,372	1,443	41.2
355	10	1,928	5,020	*	430	*	2,197	3,508	*	1,405	—	—	*	2,391	6,615	201	140.0
6,000	20	300	3,900	11,500	200	45	450	1,400	500	7,000	—	50	2,000	150	13,500	7,595	47.0
INCE	75	25	19,842	*	*	*	*	*	*	*	—	—	*	*	*	*	410.0
*	*	65	15,580	*	*	*	*	*	*	*	—	3	*	*	*	*	420.0
25,000	—	10	51,000	7,000	3,000	3,000	2,000	3,000	30,000	50,000	—	50	*	20,000	20,000	*	211.0
*	—	—	11,039	*	*	*	*	130,000	*	*	—	—	*	*	*	*	400.0
INCE	50	1,908	600	4,000	1,000	*	1,000	2,000	100	6,000	50	—	10	100	15,000	—	35.0
1,170	7	405	195	1,700	890	10	530	580	390	3,800	2	10	20	30	3,600	—	13.1
INCE	20,000	70	2	12,000	2,000	500	1,000	1,000	1,000	30,000	—	—	5	800	10,000	11,216	89.5
10,500	—	170	150	15,000	10,000	100	525	100	3,000	10,000	—	5	300	500	21,000	150	71.0
40,000	—	2	—	2,700	85,000	—	3,000	—	21,000	21,000	—	—	200	—	7,000	98	180.0
105,612	122	10,415	129,803	472,931	99,551	6,040	11,142	146,243	56,148	129,360	1,211	1,166	2,577	25,833	279,087	21,903	2,670.4

* No figures. Statistics are lacking for Rudolf Province, for Gulu Chua and West Nile districts (Northern Province), and for Lobar and Karamoja districts (Eastern Province).

EUROPEAN AGRICULTURE (MARCH 1917)

Acreage of Crops

District.	No. of Estates.	Acreage.	In Cultivation.	Coffee (Arabica).		Coffee (Robusta).		Coffee and Para.		Para.		Other Rubber.	Cacao.		Other Crops.
				Under 2 yrs.	Over 2 yrs.	Under 2 yrs.	Over 2 yrs.	Under 2 yrs.	Over 2 yrs.	Under 5 yrs.	Over 5 yrs.		Under 5 yrs.	Over 5 yrs.	
GANDA	55	30,153	10,945	287	3,287	20	110	273	2,648	82	1,041	766	1,844	213	131
Mengo	7	2,278	1,252	11	230	—	1	120	350	35	3	—	465	35	2
Entebbe	14	6,901	1,580	53	1,020	40	21	91	108	—	—	—	180	—	67
Masaka	5	2,100	709	40	637	—	—	—	—	—	4	1	21	—	6
Mubendi															
PROVINCE	7	6,475	1,247	265	391	5	26	—	278	—	—	—	232	—	19
Busoga															Cotton 60
Ieso	1	100	78	—	—	—	—	—	—	—	—	—	—	—	Other Crops 18
N. PROVINCE	19	15,090	2,423	208	1,401	—	15	—	73	—	—	10	384	—	297
Masindi	1	1,000	450	50	300	—	—	—	—	—	—	—	100	—	—
Hoima															
W. PROVINCE	19	10,837	1,199	158	920	—	—	—	—	—	—	—	33	—	48
Toro															
Totals	128	74,934	19,883	1,072	8,186	65	173	484	3,457	117	1,048	777	3,259	248	647

EXPORTS OF AGRICULTURAL PRODUCTS

	1909-10.		1916-17.		Current Price.
	Quantity.	Value. £	Quantity.	Value. £	
Cereals	No Figures		67,408 lb.	246	—
Chillies	9,638 cwt.	7,417	13,317 cwt.	27,328	13s. 6½d.
Cacao.	Nil.	—	28,853 lb.	562	—
Coffee			19,843 "	680	—
" husked	299 cwt.	371	31,136 cwt.	81,323	5½d. lb.
" in parchment			17,473 "	32,616	4d. lb.
Cotton (ginned)	13,197 cwt.	27,416	77,961 "	348,880	9¾d. lb.
Cotton (unginned)	29,922 "	22,180	32 "	34	2½d. lb.
Cotton-seed	No Figures		109,213 "	10,220	1s. 8d. per 100 lb.
Ground-nuts	3,075 cwt.	1,160	3,640 "	1,767	1d.
Rubber (wild)	110,840 lb.	14,121	400 lb.	40	2s. lb.
" (plantation)	Nil.	—	71,995 "	5,846	1s. 8d. lb.
Sim-sim	14,159 cwt.	5,431	38,090 cwt.	21,318	1½d. lb.
Sugar (jagree)	257 "	200	520 "	310	1½d. lb.
Timber	—	—	1,533 "	567	—

come into full bearing within 18 months of planting. The old wood is generally cut down each year. The core of the stem is beaten and made into thin round sappy cakes, used as soap. The leaves provide plates, covers, and wrappings for food.

The average price ranges from 2*d.* a bunch (Bukedi and Teso) to 8*d.* a bunch (Entebbe).

Beans

Beans are much grown by natives for food, especially in western province and Teso. They are sown in the autumn. Many varieties are cultivated. The current price (1917) ranges from 10*d.* (Lango) to 2*s.* 5*d.* (Entebbe) per frasila.¹

Buckwheat

Buckwheat has been under trial for some time. It does not succeed in Teso, but is doing well in Kigezi. It may prove valuable as green fodder for transport animals in the larger centres.

Cacao

This is a promising crop of recent introduction, and is rapidly extending. In 1918 there were 248 acres in bearing over 5 years old, 3,396 acres under 5 years old, and 98 acres prepared for planting. Cacao needs deep soil, shelter, and good wind screens. The land is best prepared by putting in bananas to shade the young plants in the early stages. These are cut away when the cacao is well established. Inter-planting with Para rubber is also practised. It is not yet certain whether sun shade is necessary to the mature plants. The cost of production in the Government nursery at Kampala works out at Rs. 43 per acre ; but presumably this does not take into account the expense of breaking new land, or locking-up of capital during the five years which elapse before the plants begin to bear. So far, most of the cacao plantations are in European hands, but efforts are being made to

¹ Frasila, the recognized unit of weight, equals 36 lb

popularize the crop among the natives in Mengo where the land is specially suitable. As no machinery is required to prepare the beans for market, it is well adapted to native cultivators. Most of the produce is consumed locally, but in 1916-17 257 cwt. were exported, and fetched £562, being classed equal to good Ceylon. The first consignment from the Government plantation realized £4 per cwt.

The chief pests attacking the plants are the cacao fruit-fly (*Ceratitis punctata*), the scale-insect (*Stictococcus dimorphus*), the rutelid beetle (*Adoretus hirtellus*), and crickets (*Gryllotalpa africana* and *Gryllus bimaculatus*). These are all serious, and need regular attention.

Cassava

The cassava or manioc (*Manihot utilissima*) is grown by the natives for food. It is being encouraged in the districts of Ankole which are liable to periodic scarcity. Its average price per frasila ranges from 8d. (Toro) to 3s. (Entebbe).

Castor-oil

This plant (*Ricinus communis*) is grown in every native garden for the sake of its straight poles. There are numerous indigenous varieties. So far, the seed is not used; but it might become an important article of trade.

Chillies

A small red chilli is indigenous, growing luxuriantly in a semi-wild state in the banana groves of Busoga. The pod is highly pungent, but only repays collection when prices rule high. At present, exports are only from Busoga, which is one of the chief sources of the world's supply of small chillies; but the crop is being encouraged in Masindi, Hoima, and Chua. An exotic chilli has been introduced, but is only grown to a small extent. The exports of chillies fluctuate enormously but have shown a large increase during the last three years.

Coffee

Coffee (*Coffea robusta*) is indigenous in Buganda growing wild or semi-wild in the forests, in little patches of 5 to 10 trees. It receives no attention, but the fruit is picked when ripe. There is an increasing tendency to cultivate *C. robusta*, as it resists disease and gives a large and sure yield, though the quality does not suit the home market. *Coffea arabica* was introduced from Nyassa-land some years ago, and is now the main economic crop on European and mission plantations. Coffee demands a rich soil and a regular and ample rainfall. Wind screens are desirable. Flat, water-logged land and heavy clays must be avoided. It has been much interplanted with Para rubber; but with *C. arabica* this is not desirable, as shade increases the risk of disease. Interplanted coffee will give three harvests before being cut out. *C. arabica* is planted out about 6 by 8 ft. and *C. robusta* 13 by 13 ft. The trees come into bearing at two years old, and in good situations should give a heavy yield up to 1,000 lb. of dry beans per acre at 3 years. Unfortunately in the damper regions of Uganda *C. arabica* is short lived; and it seems likely in the future that this species will be mainly grown on the higher ground, and *C. robusta* near the lake. Numerous small native plantations exist, especially in Buganda and Bunyoro where some of the chiefs have large holdings and natives have also been encouraged to take up coffee in Bugishu, where the conditions are very suitable. Unfortunately the recent poor crops, low prices, and export difficulties during the war have disappointed the native growers. Many of their plantations are now neglected or abandoned, and the areas now being planted up are very small. Power machinery for pulping the berries is in general use in European plantations. Until recently, the beans were mostly shipped in parchment; but they are now usually hulled and sized for export. A curing factory is established near Kampala, in the principal coffee district.

The severe set-back given to the coffee industry by the

epidemic of leaf-disease in 1913 and subsequent bad harvests has already been referred to. In many districts the crop fell from $2\frac{1}{2}$ lb. to $\frac{1}{2}$ lb. per tree. This, combined with war conditions, has discouraged native planters ; and as many of the trees interplanted with Para rubber are now being cut out, the total acreage under coffee is diminishing. Uganda coffee competes with difficulty with that of British East Africa. In November 1918 it was fetching in London from 90s. to 108s. 6d. per cwt., whilst Nairobi coffee stood at 112s. 6d. to 145s. per cwt. The general outlook, therefore, is not very bright, and exports are unlikely to increase rapidly. It remains to be seen whether the proposed upland plantations will improve matters. Experiments are now being conducted by the Agricultural Department with coffees from all parts of the world.

The chief pests attacking coffee trees are the fruit-fly (*Ceratitis capitata*), coffee-beetle (*Stephanoderes coffea*), longicorn beetle (*Dirphya princeps*), and various scale insects and boring beetles. More dreaded is the coffee-leaf disease (*Hemelia vestatrix*), which in some years has the character of a virulent epidemic and seriously reduces the vitality of the trees.

Cotton

Cotton is now the most important economic crop of Uganda. In spite of the set-back caused by the war, its exported value exceeds the total of all the other agricultural exports put together. Three species appear to be indigenous : *Gossypium obtusifolium*, var. *Africana*, *G. brasiliense*, and *G. kirkii*, but cultivation only began in 1904, with the introduction of American and Egyptian seed. The natives eagerly seized on this industry, which developed at a rapid rate and is now almost entirely in their hands. In 1909, Government took complete control of the cotton industry. After a series of experiments, the American Upland long-stapled cottons, 'Sunflower' and 'Allen's Improved', were selected as most suitable to the country, and the sowing of other kinds prohibited. These sorts produce a good lint, and yield on good

land upwards of 500 lb. of seed cotton per acre. Under the current cotton rules (1913) planters are compelled to get their seed from Government. No plant may be left to bear a second crop, but must be destroyed at the end of the season. All seed obtained in ginning, unless sold to Government or exported, must be sterilized or destroyed. In this way, inferior strains are being eliminated, and the whole cotton production graded up.

Six pounds of seed per acre are issued, whereas in Egypt and America 60 to 70 lb. is often sown. This rigid economy is imperative owing to the difficulty of transporting the seed. Four feet is allowed between the rows, and 18 in. between the plants. Sowing takes place from May to July, and is earliest in the north and latest in the moist region near Lake Victoria. In northerly districts April-sown plants would probably give the highest yield. Picking begins about November and must be finished before the spring rains, which usually begin about March 15. The raw cotton, which is subject to inspection, may only be bought by licenced persons and their agents, usually small Indian traders. Purchase and sale are confined to markets fixed by Government. The ginning, practically the whole of which is now done in the country, is in the hands of European firms, who also control the export. Moveable ginneries, costing about £5,000, are coming into use. These follow the cotton areas, which shift from time to time, as the natives promptly abandon an area in which the crop has failed. More moveable and local ginneries are needed, both to reduce the cost of transporting the bulky raw cotton and to obviate the objections to bringing this in its uncleaned state into the townships, as it frequently harbours disease-carrying vermin. All ginneries are subject to inspection and hand-gins must be registered annually. The ginning season extends roughly from January to June.

The Teso and Bukedi districts of eastern province, especially the deep sandy loam of the plains east of Lake Kioga, are the best cotton districts. In both, its cultivation is rapidly extending. For Teso, the 1916-17 returns show an increase

of 70 per cent. over the acreage of 1915-16. In Bukedi, 3,000 acres were added to the plantations in the same period. The yield in these districts often exceeds 600 lb. per acre, whilst in Buganda the average is 300 to 400 lb. The best Bukedi hand-picked cotton has been valued at 9-50d. per lb. with 'middling' American at 8-05d. per lb. The average eastern province crop ranks about 1d. per lb. above 'middling' American, but is inferior to Egyptian 'fully good fair'. The whole industry received a sharp set-back during the war. Many of the natives were taken for war work, and much of the seed distributed in 1914 was not planted. The check was aggravated by freight difficulties, lint being unsaleable for many months. During the later stages a considerable proportion of the crop was shipped to India instead of the European markets. In the quarter ending March 31, 1918, 210,000 lb., valued at £17,500, were exported to the United Kingdom, and 1,251,633 lb., valued at £104,303, to India and Burma.

The chief pests attacking cotton are the boll-worm (*Erias insulana*), cotton-stainers (*Dysdercus nigrofasciatus* and *D. pretiosus*), cotton-aphis (*Aphis gossypii*), scale-insects, cut-worms, grasshoppers, and millipedes, but they seldom do serious damage. The wild guinea-fowl which abound on the plains do great service by feeding on the cotton-staining insects.

Cotton-seed

The cotton-seed obtained from the lint in ginning is a bulky product, and its export depends mainly on freight prices. The export has risen from 58,549 cwt. in value, £5,909 in 1911-12 to 109,213 cwt., value £10,220, in 1916-17. A little oil is expressed locally, but the greater part of the seed is wasted, although it makes an excellent general manure.

Dhal

The dhal, or Congo pea (*Cajanus indicus*) is extensively grown in Acholi and western province, especially Kigezi, where it is an important food-crop.

Ground-nuts

Two varieties are grown, principally in eastern province, round Kioga, where they do well. Ground-nuts are a useful concentrated food, a great stand-by for years of dearth, and make an excellent rotation-crop with cotton and sesame; they are therefore being encouraged, especially in cotton districts.

Linseed

This has been tried both for seed and fibre, but so far without much success. A creditable crop was grown on Mount Elgon, but was difficult to sell.

Maize

This is not an important food-crop, but its cultivation is extending rapidly, especially in western province. Improved varieties have been introduced, which yield well. The average price ranges from 4*d.* (Bukedi) to 1*s.* 7½*d.* (Entebbe) per frasila of 36 lb.

Millet

This is the main native cereal crop, and forms the staple food in northern and western provinces and Teso.

The principal sorts grown are mtama, or tall millet and wimbi or small millet, which is by far the most popular. A variety called bulo is cultivated in Bunyoro and Ankole, where it is the principal crop. In most districts wimbi is sown in the autumn and ripens between December and March, but in the lower parts of Bugishu it is planted in the spring rains. In grain-eating districts, such as Teso and Bunyoro, wimbi is ground and eaten as porridge. In banana districts, a small quantity is grown to ferment the plantain beer.

The average price of both kinds varies from 6*d.* (Teso and Lango) to 2*s.* (Bukedi) per frasila.

Rice

Rice has been tried in all parts of Buganda, and in Eastern Province, where the conditions are favourable. So far, the

acreage under this crop is small, but is increasing in Busoga, Bukedi, and Toro. Rice is not a native food, and growers find a difficulty in husking it for market, which prevents its extensive cultivation. Two hand huskers have now been introduced. Large quantities could easily be produced.

Bombay rice is the most suitable, the rainfall not being sufficient for the upland varieties. The average price ranges from 6s. (Bukedi) to 9s. 7d. (Entebbe) per frasila.

Rubber

Rubber ranks third in importance among the economic crops of Uganda, being exceeded at present by cotton and coffee. Wild rubber has been collected in the forests and exported for many years. The greater part is obtained from the Lagos silk-rubber tree (*Funtumia elastica*), which is abundant in Mabira and Bugoma forests. In Mabira alone 450,000 tappable trees had been located by 1909. The tree can be tapped three times a year, and gives an average annual yield of 5 to 6 oz. of dry rubber of good quality. It is unsuited for planting up, as it does not yield well till 20 years old. The vines *Landolphia Dawei* and *Clitandra orientalis* are also indigenous and are tapped by the natives. *Landolphia Dawei*, which grows to a great size, will yield a quart of latex at a time, and may be tapped thrice yearly. *Clitandra orientalis* is commoner, but has a smaller yield. The rubber of both is of fine quality. None of these plants, however, are at present regularly tapped, and the exports of wild rubber have decreased rapidly since shipments of plantation rubber began.

The planting of rubber began in 1908. Both Ceara (*Manihot Glaziovii*) and Para (*Hevea braziliensis*) have been tried. Para has proved by far the best for European planters, and is the only kind which need be considered here. Ceara, which grows quickly and gives a good rubber, has too low a yield. It was at first the favourite with native cultivators, who still grow it to some extent, but are now generally replacing it by Para. Under good conditions, it will just pay them, but does not give a sufficient return for European supervision.

Both natives and Europeans now have a considerable acreage under Para, principally in Kiagwe (Mengo), where the tree gets the large and regular rainfall which it needs. About 108 trees are planted to the acre, 20 by 20 ft., coffee or cacao being usually grown between the young plants for the first 5 years. This reduces the cost of production and also helps to keep the land clean. The early growth is slow, but a Para plantation should show a profit at 5 years old, when the catch-crops are cut out to leave room for the development of the trees. At this point the trees should yield an average of 6 to 7 oz. of dry rubber each, the tappings extending over 4 months. This amount increases yearly till a maximum of about 3 lb. each from the oldest trees may be reached. In 1916, 120 acres of Para on the Kivuvu Company's estate were tapped, and 16,700 lb. of rubber obtained, averaging about 22 oz. per tree. The tapping is usually performed in a wasteful and unscientific way; and were skilled labour obtainable for the African rubber industry, the yield would probably be much increased. Para is said to cost about 9d. to 1s. per lb. to produce and place on the London market; and recent prices have fluctuated between 2s. 2d. and 4s. per lb.

Sim-sim or Sesame

This is an important native crop in the Acholi district and eastern province, especially Lango and Kumi (Teso), where it should increase rapidly, as it forms an excellent rotative crop with cotton and ground-nuts. It is also grown in small quantities all over the country for food, being much liked as a relish with bananas. Sim-sim is a concentrated foodstuff, of great value as a stand-by in case of famine, and is for this reason encouraged by Government. Trade in the seed has rapidly increased and it now stands fifth on the list of exports. A closely-allied plant, *Ceratotheca sesamoides*, is grown for food in Acholi.

Sugar-cane

This has so far only been grown in a haphazard way by the natives, chiefly in Buganda, but is capable of great development,

and has lately attracted the interest of European planters. In 1916 it occupied 1,512 acres in Buganda, of which 1,312 were in Entebbe, and 400 acres in Toro ; the total returned area being 1,937 acres. . There is no reason why the Protectorate should not be self-supplying in sugar. The greater part of the produce is now consumed locally in the green state. An Indian trader, A. Visram, has two jagree, or crude sugar, factories, in Mengo and Entebbe, and exports a part of the produce. The price of canes varies from $\frac{1}{2}d.$ (Bukedi) to $1\frac{1}{2}d.$ (Entebbe). Jagree is 4*d.* lb.

Sweet Potatoes

These are an important native food-crop, but are regarded by the banana-eating tribes as an inferior food, unsuited to chiefs, and mainly useful for nourishing servants, and as a stand-by when bananas fail. Nevertheless, they are much eaten, especially in Bunyoro, Teso, and Busoga. The average price varies from 2*d.* (Bukedi) to 1*s.* (Toro) per frasila.

In dry districts they suffer badly from a caterpillar, *Acraea terpsichore* L.

Tea

Experimental plantings of tea from Assam have been made since 1909 and are being watched with keen interest by planters ; but the results have not yet been offered for sale. It is doubtful whether tea of a good quality can be produced in Uganda.

Tobacco

Tobacco flourishes everywhere, and is an important article of native trade. Large quantities are raised by the natives for their own use, and for sale in districts where it is not grown. Experiments in the production of fine qualities suited for export are being made in the drier localities, and are attracting the interest of European planters : as there is no doubt that a large area of land is available capable of producing tobacco for export. The average price of native tobacco varies from 9*s.* per lb. (Entebbe and Kigezi) to 2*s.* 5*d.* per lb. (Hoima).

Vegetables and Fruit

Peas, beans, and onions are the favourite native vegetables, the two first forming important food crops, especially in western province. Most European vegetables can be grown with fair success under light shade. Dwarf French beans, cabbage, cauliflower, spinach, marrows, tomatoes, and lettuce nearly always do well. Onions and leeks succeed except on hot dry soils. During the dry months the beds should be made on the level, or in shallow trenches, to secure the maximum of moisture. During the heavy rains, beds raised 6 to 12 in. high do best. English potatoes succeed, and native growers in Buganda are taking to them: 384 acres were grown in 1916-17. Fresh tubers must be imported from time to time, as the stock soon deteriorates.

There is a shortage of fruits; but the mango, pineapple, paw paw, orange, lemon, lime, apple, bread-fruit, guava, custard-apple, Cape gooseberry, mulberry, and strawberry, all do well, and are worthy of more attention.

European fruit trees should always be grown on their own roots, not grafted, and will not succeed below the 4,000 ft. line. The main difficulty lies in ensuring a due period of rest. Pine-apples do well on light sandy soils, and should be dug out after producing a fruit.

Wheat

This crop was introduced many years ago in Toro, but has not made great progress, owing partly to transport difficulties and partly to the apathy of the natives. It is grown mainly on the foothills of Ruwenzori, where the yield only averages 12 bushels an acre. Toro, however, is now self-supplying in wheat, but there is scope for a much larger output, as wheaten flour sells readily in the Belgian Congo. Three water-power grinding mills have been set up near Fort Portal. Wheat has also been introduced in the Mubendi district and in Kigezi where it seems likely to do well. Attempts have been made to start it on the foothills of Elgon, Bugishu. The first crops

failed ; but the experiments are being renewed with fresh varieties. A flour mill has been set up at Mbale.

Wheat is not eaten by the natives, who only grow it for sale to Europeans. The price varies from 4s. 6d. (Ankoli) to 2s. 4d. (Toro) per frasila. There are no returns for other districts.

FOREST PRODUCTS

Timber

Timber is the only forest product of commercial importance. This is generally treated in Chap. V (Forests). The forests of Mabira, Budongo, Bugoma, and Tero, which have been systematically surveyed and their contents reported on, are economically exploited. Kibale has been partially surveyed for timber, and Luambabye for rattan-canes.

Budongo is the most valuable timber region, containing numerous giant trees of the mahogany class, 80 to 90 ft. high. Tero forest is reserved to the Government, which has a large sawmill plant in the district, supplying the public works department with constructional timber.

South Tero being within the zone of military operations, the sawmill was dismantled early in the war, and has been transported to Sango Bay for re-erection on Busungwe Island. Logs will be floated down Kagera river to the new site. In consequence of the exhaustion of exploitable timber in Tero forest proper, the exploitation of Nambigiruha forest (1,792 acres) on the Entebbe-Masaka road, has been commenced. Numerous trees have been felled and stored for seasoning. Restocking with musizi and *Entandrophragma* sp. is being undertaken as felling proceeds ; and nurseries have been established in which seedlings are raised for future afforestation.

Mabira forest is leased to the Mabira Forest (Uganda) Rubber Co., and worked by up-to-date timber machinery. Good constructional timber and furniture are turned out, but so far the Company has worked at a loss.

For export purposes the most valuable indigenous timbers are *Entandrophragma angolense*, miovu (*Entandrophragma*

utile), and munyama (*Khaya anthotheca*). All these are of the African mahogany class, and though inferior to Central American and West Indian mahogany, would find a market in London. Wide boards of *Balanites Wilsoniana* should be able to compete with bass and white wood. At present, however, the exports of timber are insignificant, and transport difficulties will probably check their increase for some time to come.

The conservation of the forests as a future source of wealth has received considerable attention in recent years. The rapid development of the country inevitably caused considerable destruction of timber for fuel and building purposes, especially near towns. A beginning, however, has now been made with afforestation, and the forestry department is raising large numbers of quick growing trees for shade and fuel. A fuel reserve of 109 acres for the Busoga Railway and Marine has been cleared and planted up at Mutai, and 10 acres of mvule planted at Batambogwe in Busoga in 1915. The main roads are being bordered with shade trees, chiefly nsambya and rubber trees, and nurseries have been established of the more valuable species. Experiments are being made at Mutai with the algaroba (*Prosopis juliflora*) and cutch (*Acacia catechu*), with a view to their naturalization.

The Forests Ordinances of 1913 and 1916 forbid the felling of nsambya and mvule trees under $2\frac{1}{2}$ ft. in girth measured $4\frac{1}{2}$ ft. from the ground, and levy a fee of 25 cents per cubic foot on all forest produce of Crown lands within 10 miles of a township, and 12 cents per cubic foot elsewhere. Mvule, nsambya, and musenene trees pay a higher rate (see below). The cubic measure is calculated by taking the girth at or about the middle of the tree, and dividing by four. An allowance of 1 in. per foot $\frac{1}{4}$ girth is made for bark, and the result is squared and multiplied by the length. An allowance is made for damaged trees. The height and girth of the tree must be supplied when applying for a timber licence. Fees are also charged for cutting poles, rafters, bamboos, wattles, bark, and firewood. No poles exceeding $9\frac{1}{2}$ in. diameter may be cut ;

and none from mvule, miovu, musenene, and nkoba trees. Firewood for travellers, and forest produce cut by natives for their own use, are exempt from the ordinance, which does not yet apply to Rudolf province, or the districts of Chua, Gulu, West Nile, Lango, and Kigezi.

List of Principal Forest Trees

Balanites Wilsoniana. A large tree, discovered in 1905. Like bass wood in colour, but firmer and tougher. Works fairly easily, cleaves well and takes nails. A good general-purpose wood. Weight per cubic foot, 45 lb.

Kabira forest.

Bamuegira (*Croton zambesicus*). Height 70–80 ft., trunk 40–50 ft., girth 6–12 ft. Wood fairly hard when fresh, with unpleasant smell. Is tough, hard to saw, takes nails easily, but splits. Turns badly. Weight per cubic foot, 44 lb.

Mabira and Kibale forests.

Carapa grandiflora. A mahogany-like wood of medium grain, hard to saw, fissile, does not take nails. Useful furniture wood. Weight per cubic foot, 37½ lb.

Dalbergia melanoxylon. The African blackwood: a valuable substitute for ebony and important commercial product. Hard and heavy. Weight per cubic foot, 78½ lb.

Entandrophragma sp. A very large and valuable tree of the mahogany class; probably the best general-purpose tree of this group. Fine uniform straight grain, works easily, glues and polishes well. Suitable for export as cabinet wood. Weight per cubic foot, 39 lb.

Abundant in Budongo, rarer in Bugoma.

Gwabuzito (*Pygeum Africanum*). The 'red stink-wood'. Usually undersized and crooked, but ranges to 50 ft. high and 32 in. diameter. Timber heavy, hard, and valuable.

Mabira: not abundant.

Joge (*Albizia* sp.). Height 70–90 ft., bole 30–40 ft., girth 6–10 ft. Dark, hard, heavy, durable wood, resembling Mugavu. Weight per cubic foot, 41½ lb.

Mabira and Budongo.

Kasisa (*Celtis* sp.). Height 60–70 ft., bole 20–35 ft., girth 8–12 ft. White wood, fairly heavy, but liable to split. Weight per cubic foot, 43½ lb.

Mabira.

Lufugo. 'Speckle-bark'. Economically the principal tree of Mabira forest. Tall, straight, giving hard wood of medium density. Not durable without impregnation. Ranked by the natives as useful timber.

Mabira; where it forms about 45 per cent. of the timber.

Lusambya (see *Nsambya*).

Makindu Palm (*Phoenix reclinata*). The wild date. Tall straight poles, useful for temporary building. Abundant.

Miovu (*Pseudo cedrella utilis*: syn. *Entandrophragma utile*). A large tree of the mahogany class, giving very valuable light brown coarse wood, useful for furniture and local building. Would pay for export. Ranges to 22 ft. in girth, with useful bole 80 ft. or more high. Saws and planes easily, turns well and takes good polish, but will not take nails. May not be cut for poles.

Common in Budongo, rarer in Bugoma. Also in Mubuku valley (Ru-wenzori).

Weight per cubic foot, 40½ lb.

Mpewerc of Chagwe (*Celtis Soyauxii*). Height 70–80 ft., bole 40–50 ft., girth 8–14 ft. A tough, white wood, hard to saw and plane. Nails badly and turns indifferently. Weight per cubic foot, 49½ lb.

Mabira and Bugoma forests.

Mpewerc of West Uganda (*Piptadenia Africana*). One of the principal trees of Tero forest.

Mpimbya (Maba sp., closely related to *M. Abyssinica*). Height 70–80 ft., bole 30–40 ft., girth 6–9 ft. Gives light hard wood with dark markings. Hard to saw and resists nails; planes fairly easily. Weight per cubic foot, 52 lb.

Mabira forest. *M. Abyssinica* occurs in Bugoma and Kibale. It is soft and not durable, and only suitable for light furniture.

Mubajangabo (*Zanthoxylon* sp.). Height 50–70 ft., trunk 30–40 ft., girth 5–7 ft. Bark studded with brittle thorny protuberances, branches covered with thorns. Hard durable yellow-wood. Saws, planes, and turns easily, but grain rips out. Nails well. Weight per cubic foot, 39 lb.

Mabira, Bugoma, and Ankole forests.

Mubajangalabi (*Rauwalfia* sp.). Height 50–60 ft., bole 20–30 ft., girth 6–10 ft. Wood resembles American white pine; soft and easy to work. Takes nails well but holds badly.

Mabira forest.

Mubula (*Parinarium excelsum*). A large tree giving light brown coarse wood, useful for furniture and local building. Much used at Mbarara station. Weight per cubic foot, 56 lb.

Plentiful in Tero, Ankole, and Kibale; scarce in Bugoma.

Mugavu or *Mutampindi* (*Albizia coriaria*). Wide spreading, with short trunk and large branches. Hard mahogany-coloured wood, heavy and durable; might pass for walnut. Rends cleanly and nails well. Weight per cubic foot, 45½ lb.

Mabira and north-west Ankole forests.

Muhindi (*Cynometra Alexandri*). The ironwood. Height 70–80 ft., bole 40–50 ft., girth 8–14 ft. Even grained light yellow-wood, hard to saw and plane. Resists nails, and splits. Smells like burning fat; and is said to be subject to insect attacks. Weight per cubic foot, 65 lb.

The chief tree of the Budengo and south-west Toro forests ; also common in Mabira, and the Semliki valley.

Mukebu (*Aleurites* sp.). Height 50-60 ft. ; trunk 30-35 ft. Brown mottled wood with a silver grain, said to be fairly durable. Weight per cubic foot, 21 lb.

Mabira forest.

Mukole (*Dombeya Mukole*). Much branched. Bole 15-20 ft., girth 6-8 ft. Timber hard heart wood with good grain, walnut colour. Wood rends raggedly and easily splits. Sapwood about 2 in. thick. Weight per cubic foot, 48½ lb.

Mabira forest.

Mukunyu (*Mimusops ugandensis*). A close relative of the West African *M. Cuneifolia*, found only in Lower Guinea.

South Buddu.

Mululu (*Chrysophyllum albidum*). Tall. Bark contains latex. Coarse, open-grained, dirty-brown wood, useful for construction but of no export value. Weight per cubic foot, 44½ lb.

Bugoma and Kibale forests.

Mumuli (*Scherbera* sp. nov.). A medium-sized tree with light bark. Wood close, fine grained, as hard as horn-beam. Works fairly well, is non-fissile, and resists nails. Turns and polishes. Suitable for tackle-blocks, &c. Weight per cubic foot, 53 lb.

Budengo and Bugoma forests.

Munyama (*Khaya anthotheca*). A large tree giving light mahogany-like wood, soft and brittle but rich in colour. Might pass for cedar. Suitable for cabinet making, and might pay as an export. Weight per cubic foot, 36¼ lb.

Very common in Budengo ; rare in Bugoma.

Musenene (*Podocarpus milanjanianus* var. *arborescens* and *P. glacialior*). A conifer, closely related to South African yellow-wood. Height to 80 ft. Scent and somewhat the appearance of yew, with long glossy leaves and mauve-pink catkins. Valuable timber for construction, especially interior house work, and as substitute for spruce and pine. Compact in texture, is free from knots and easily worked, but does not take nails well. Resists termites. Seedlings are being raised for future afforestation. Fee for felling : 40 cents per cubic foot within ten miles of a township, 25 cents elsewhere. May not be cut for poles. Weight per cubic foot, 27 lb.

P. milanjana grows in Tero forest, in wet ground at 3,720 ft. and on Ruwenzori, 7,000-10,000 ft., but does not appear to exist in the intervening country.

P. glacialior, a finer and larger tree, appears to be confined to the south part of Tero forest, whence it probably extends south into Tanganyika Territory.

Musizi (*Moesopsis berchemoides*). Tall, with uniform round bole up to 76 ft., girth up to 12½ ft. Symmetrical spreading branches, ash-grey channelled bark. Durable brownish yellow-wood, largely used for houses,

and formerly for canoes on Lake Victoria. One of the best timber-yielding species. Usually found on outskirts of forests; when found in the interior, is generally of great size. Weight per cubic foot, 33 lb.

Mabira, Budongo, and Tero forests.

Musogasoga (*Croton macrostachys*). Height 50 ft., clear trunk 20–25 ft. Light, tough wood. Weight per cubic foot, 34½ lb.

Mabira forest.

Musoga (*Alstonia congensis*). Height often exceeds 100 ft. Bole up to 85 ft. White soft wood, useful for same purposes as deal.

Budongo, where it is very conspicuous, forming nearly 10 per cent. of the forest.

Mutumba (*Cordia unyorensis*). Large and spreading with cordate leaves and conspicuous white flowers. Yellow, coarse-grained spongy wood, only useful for local purposes. Used for native drums. Weight per cubic foot, 30½ lb.

Budongo forest.

Mvule (*Chlorophoru excelsa*). Height 70–80 ft., bole 40–50 ft., girth 8–18 ft. The *Sroko* or *odum* of West Africa. Yellow, coarse-grained wood, with zigzag markings on a tangential section. Heart wood irregular; sapwood about 2 in. thick. Useful for local building; but saws hard and will not take nails. Plantations are being made in Busoga. Fee for felling, 30 cents per cubic foot within 10 miles of a township, 20 cents elsewhere. May not be cut for poles. Weight per cubic foot, 46 lb.

Mabira, Busoga, and Budongo forests.

Mwojolo (*Olacinae* sp.). Height to 60 ft., bole 20–30 ft., girth 6–10 ft. Hard, even-grained wood of light colour, very useful. Works easily, rends cleanly, but rather brittle. Resists nails. A sapwood tree about as hard as ash. Weight per cubic foot, 45½ lb.

Mabira forest.

Nkobo (*Lova budongensis*). A large tree, first found in 1905. Uniform dark-brown wood, straight grained, and easily worked. Takes glue and polish well. Weight per cubic foot, 36½ lb. May not be cut for poles.

Budongo and Bugoma forests.

Nongo (*Albizzia* sp.). Height 70–90 ft., bole 30–45 ft., girth 6–10 ft. Dark, hard, durable wood very like *A. coriaria*. Weight per cubic foot, 41½ lb.

Nsambya or *Lusambya* (*Dolychandrone platycalyx*). Height 60–70 ft., girth 6–9 ft. Tough, durable whitish timber, used for house building and about as hard as English birch. A sapwood tree, much planted for shade on the borders of roads. Specimens under 2½ ft. in girth at 4½ ft. from the ground may not be felled. Timber fee, 30 cents per cubic foot within 10 miles of a township, 20 cents elsewhere. Weight per cubic foot, 42½ lb.

Mabira and Kibale forests and Semliki valley, and throughout savannah zone; abundant.

Omuwumu (*Erythrophloeum guineense*). Large and spreading; girth

up to 15 ft. The redwater tree or sassy bark of West Africa. Coarse, strong, open-grained, brown wood. Bark and pods poisonous. Weight per cubic foot, 65 lb.

Budongo forest ; fairly common.

Sesambya (*Linociera* sp.). Height 60–70 ft., girth 6–9 ft. Hard whitish wood, close ground and durable. Tough, hard to saw and nail, but takes nails well. Planes fairly well ; takes good polish.

Mabira and Kiagwe, plentiful.

Other products

Wild rubber, which was at one time regarded as a staple resource of the country, has proved of slight importance since the Para plantations came into yield ; and the numerous vines in Mabira and other forests are no longer regularly tapped. No real attempt has yet been made by settlers to exploit the various species yielding tannin, fibre, and oil-seeds. These may yet prove a source of wealth, though so far expert reports are not encouraging. The natives carry on a flourishing bark-cloth industry, and also obtain a useful fibre, Nkokwa, from *Dombeya Dawes*. The shea-butter tree, growing in northern province, gives both oil-seeds and edible fruit.

LIVE-STOCK

The pastoral tribes of Uganda possess large herds of cattle, sheep, and goats, which form their principal means of subsistence. These tribes live chiefly in the west and north. In Ankole, Bunyoro, and Buganda, the rolling plains of short grass, which are free from tsetse, pasture great numbers of cattle. The less arid parts of the north-eastern steppe also support a large head of stock. Cattle are the most important, though goats are the most numerous, animals kept ; the best strains being found in Ankole and Karamoja. Only the uninhabited forests and mountains are without them. Stock-breeding is in Uganda entirely a native pursuit ; and there has been no attempt, as in British East Africa to grade up by the introduction of European sires. The pastoral tribes are sharply divided from the agriculturists, whose occupation they despise. Milk is their staple food, and they do a considerable

trade in hides and skins. Formerly they regarded their stock, especially cows, with almost superstitious reverence, and could with difficulty be induced to part with them : considering them partly as capital and partly as objects of religion. This attitude persists in western province, where it is still difficult to persuade the natives to part with their beasts. But in Buganda and eastern province, where the population is more sophisticated and given to trade, breeding for sale is now general. It has been encouraged by the introduction of ox-transport and ploughing, and by the growing demand for meat and hides.

In Rudolf province the great herds of the Turkana, which include camels, cattle, sheep, and goats, are estimated at half a million head. They are the principal means of livelihood, and are sometimes used in warfare, being stampeded in a body against the enemy's zeriba to make a breach in its defences. Capture of the live-stock is an important feature in all military operations against these tribes.

Cattle

All the existing breeds of cattle seem to be derived from two distinct races. The first is the small, humped, short-horned breed, usually black or black and white, and very like the Indian zebu, which is found in Eastern Province. The Karamojo ox, which is of this type, is the best class of animal bred in Uganda. A smaller hill race, probably of different origin, is found on the slopes of Elgon. The second is the Nsagalla breed, which is found in its purity in Ankole, and also occurs in Abyssinia. This splendid beast is larger than any other existing type of cattle. It is dark red in colour, with only a slight vestige of a hump, and is chiefly remarkable for the immense size of the spreading horns. It is peculiar to the western highlands, and when brought east sickens and dies. The Buganda and Bunyoro cattle appear to be the result of numerous crossings between the Ankole and eastern breeds. The chief types are the Nganda, sturdy black and white shorthorns, without a hump ; Nsoga, with rather longer

horns and a small hump ; and a red or red and white hornless race. Uganda cows on the whole are poor milkers, the best being the Ankole breed, yielding up to 5 quarts a day. In Bunyoro, few cows give more than two quarts, and in Buganda less.

Cattle are driven out to graze during the day, the high rolling plains of short grass being the favourite pasture. They are always driven into the villages or temporary kraals at night. When herbage is poor near home, they may be sent to a distance in charge of herdsmen, who lead a nomadic life. Nurture and milking are done by men and boys. Originally, women were not allowed to approach the cows, which were surrounded by numerous taboos ; but in the administered districts these customs are probably breaking down. Herds are usually all of one colour, and herdsmen at pasture must not let their animals mix with others of a different tint. Otherwise breeding appears to be left to chance. The best herdsmen are found in Ankole. Here, owners are warmly attached to their cattle, pet them, and talk to them. The beasts are consequently very docile and intelligent, and 200 head are easily managed by one herdsman. Usually, however, several armed guards are sent with them, to ward off wild beasts. The herds rove long distances, are watered twice daily, and sheltered in temporary kraals at night.

The principal cattle diseases are rinderpest, East Coast fever, foot and mouth disease, and trypanosomiasis or 'fly'. Rinderpest, which causes high mortality, especially in young stock, has assumed serious proportions in recent years, particularly in eastern and northern provinces.

East Coast fever, which is propagated by ticks, is endemic in Buganda and eastern province ; but is being combatted by regular cattle dipping and the mapping out of non-endemic areas. Foot and mouth disease has been prevalent in Ankole during the last four years, some outbreaks being of a severe type with high mortality.

Trypanosomiasis gives a good deal of trouble in Buganda, western province, and Busoga. The infection appears to be

spread from infected to healthy herds outside the tsetse belts by the agency of other flies. Accurate definition of tsetse areas and control of stock-routes will, it is hoped, materially reduce this danger.

The number and value of the native herds is very great. The following statistics of numbers and average price are made up to March 1917. They exclude Rudolf province and parts of northern and eastern provinces where no basis for an estimate exists, but the herds in these regions alone are believed to approach 500,000 head.

<i>District.</i>	<i>Bulls.</i>	<i>Average Price.</i>	<i>Cows.</i>	<i>Average Price.</i>
		<i>£ s. d.</i>		<i>£ s. d.</i>
<i>Buganda—</i>				
Mengo . . .	24,517	3 0 0	24,517	4 0 0
Entebbe . . .	1,294	4 0 0	1,295	5 0 0
Masaka . . .	5,465	3 0 0	47,512	3 13 4
Mubendi . . .	1,000	4 0 0	7,000	5 0 0
<i>Eastern Province—</i>				
Busoga . . .	15,800	4 0 0	23,700	6 0 0
Bukedi . . .	No figures	2 6 8	No figures	4 0 0
Teso . . .	48,884	2 13 4	108,803	4 0 0
Lango . . .	12,000	1 13 4	12,000	4 0 0
Karamoja and Labor .		No basis for estimate.		
<i>Northern Province—</i>				
Masindi . . .	1,101	2 10 0	1,102	4 10 0
Hoima . . .	2,368	2 16 8	2,368	3 6 8
Chua . . .	4,500	1 0 0	4,500	1 10 0
West Nile . . .	25,000	1 0 0	25,000	2 0 0
Gulu . . .		No basis for estimate.		
<i>Western Province—</i>				
Toro . . .	26,297	£3 to £5	26,298	5 0 0
Ankole . . .	115,000	£2 to £4	115,000	£3 to £5
Kigezi . . .	No figures	1 0 0	No figures	£2 to £4
Total . . .	283,226		399,095	

Sheep

Sheep are nowhere very numerous, and appear to have decreased during the past few years. On account of the many taboos which formerly surrounded them they have never been popular. They are all of the fat-tailed species and mostly of a poor class. The breeds vary little; the best

are found in Busoga, but are few in number. They have long tails trailing on the ground. The trade in sheepskins seems to be on the decline. The largest flocks are kept in eastern and Rudolf provinces (see below). In Ankole, a pet sheep accompanies each herd of cattle, as it is believed to ward off lightning.

Goats

Goats are kept everywhere in large numbers by the natives. Every peasant has a few, as they fatten quickly, eat anything, and are very prolific. They are mostly of the common small African type. A distinct breed, with fine hair 10 or 12 inches long was peculiar to Busoga, but is now almost extinct. Goat's flesh is preferred to mutton ; but little or no use seems to be made of the milk.

The following table of the numbers and average price of sheep and goats is made up to March 1917. There are no statistics for Rudolf province, where large flocks are kept :

<i>District.</i>	<i>Sheep.</i>	<i>Price.</i>	<i>Goats.</i>	<i>Price.</i>
		<i>s. d.</i>		<i>s. d.</i>
<i>Buganda—</i>				
Mengo . . .	8,497	10 8	102,605	6 8
Entebbe . . .	1,499	10 0	15,875	13 0
Masaka . . .	1,840	6 8	10,123	6 0
Mubendi . . .	4,100	5 0	24,100	5 0
<i>Eastern Province—</i>				
Busoga . . .	18,000	10 0	45,000	13 0
Bukedi . . .	—	8 0	—	10 0
Teso . . .	40,830	5 4	87,896	6 8
Lango . . .	70,000	5 4	150,000	5 4
Karamoja and Labor .		No cases for an estimate.		
<i>Northern Province—</i>				
Masindi . . .	2,647	6 0	11,428	6 0
Hoima . . .	2,329	6 8	9,315	6 8
Chua . . .	7,000	2 0	30,000	2 0
Gulu . . .	—	3 0	—	3 0
West Nile . . .	40,000	2 8	80,000	1 4
<i>Western Province—</i>				
Toro . . .	15,687	5 0	37,962	6 0
Ankole . . .	50,000	5 0	250,000	8 0
Kigezi . . .	—	4 0	—	4 0
Total . . .	262,429		854,304	

Camels

Camels are possessed in considerable numbers by the Turkana and other nomads of Rudolf province, where they are the most suitable beast of burden ; but they cannot be brought south, as the climate in the rest of the Protectorate is too moist for them. There is no estimate of their numbers.

Horses

A few horses are brought into Uganda from time to time. The risk of bringing them through the coastal fly belt from Mombasa has been lessened since the opening of the railway as they can now travel at night when the tsetse does not feed ; but they do not stand the climate well. They must not be exposed to heavy rains, and should always be brought under cover at night. Their average value in the country is £33 to £50.

Mules and Donkeys

Mules do pretty well in Uganda, especially the hardy Abyssinian breed ; but they are scarce and expensive. The returns for March 1917 show only 33 in native ownership—mostly in northern and eastern provinces—and 8 in European. Their price varies from £20 to £30.

Donkeys are rather more plentiful. The wild or semi-wild ass of Somaliland, of the same species as the domestic donkey, is found in Rudolf province. It is easily tamed, and large numbers are caught and domesticated by the Masai, Suk, and other tribes, and afterwards sold in Uganda and British East Africa. The Turkana appear to make considerable use of donkeys, but there is no information as to the numbers they possess. These native donkeys are large and strongly built, but need long training before they can be used for draught purposes. They are most common in Chua, where nearly half the native-owned donkeys of the Protectorate are found. It has been suggested that they would make good stock for the breeding of mules.

In March 1917, 246 donkeys were owned in Uganda, excluding Rudolf province; 230 by natives, and 16 by Europeans. A hundred of these were in Chua district, and 83 in eastern province. The average price varies enormously in different parts of the country. The lowest is £1 10s. (Chua); the highest £10 (West Nile) and £13 (Masaka). In most districts £2 to £4 is asked.

Dogs and Cats

Dogs are kept for hunting in Buganda, Busoga, the Acholi country, and probably elsewhere. The usual breed is rather like a smooth English terrier, with a tan coat. They are generally thin, wild, and in wretched condition. The Buganda greatly value their hunting dogs, and give them a severe and careful training. Drugs are said to be used to improve their scent, and many curious customs do or did surround them.

Cats are little known. In Buganda black and white ones alone are domesticated, all other colours being regarded as wild animals and killed whenever found.

Ostriches

Ostrich-farming appears to be practised on a small scale. It is controlled by the ostrich ordinance of 1909, under which all ostrich farmers must be registered and pay a fee of Rs. 5 but does not yet seem to have made substantial progress.

Fowls

Fowls are kept everywhere; but they are carelessly treated and usually thin and of poor quality. Among the Buganda they were formerly birds of ceremony, killed to celebrate births, marriages, funerals, &c., and might never be eaten by women. Eggs are a staple food, worth from 2d. a dozen (western province) to 8d. a dozen (eastern province), but their quality and freshness often leave much to be desired.

Bees

The Acholi of northern province and other tribes domesticate honey bees (*Apis mellifera*). The long cylindrical hives are made of bamboo or wattle, and usually hung in the branches of the sycamore-fig. Honey is a staple food, and a small trade is done in beeswax.

Silkworms

An attempt is being made to domesticate the African silkworm (*Anaphe infracta*). Near Kampala, 10 acres of the food-plant *Bridelia micranta* have been stocked with 1,680 nests, and 10,000 colonies of caterpillars founded. The Mubendi district at present contains the largest number of silkworms, and this industry may become important there.

ANIMAL PRODUCTS

Hides and Skins

The trade in ox and cow hides is important, and shows a steady increase during the last few years; the exports having risen from 3,935 cwt., value £10,706, in 1907-8 to 19,703 cwt., value £52,420, in 1916-17. Goat, sheep, and calf skins are also exported in considerable numbers; but the trade in these appears to be declining.

Dairy Produce

A considerable quantity of ghee, or clarified butter, is made in Uganda, and chiefly consumed in British East Africa. Two factories have been set up, in Mengo and Entebbe, where it is prepared according to improved methods.

Milk and native butter are staple foods, generally obtainable. The current price of milk is $1\frac{1}{2}d.$ a bottle in western province, and $4d.$ a bottle in Buganda. In native villages milking is often done under filthy conditions and travellers are well advised to provide their own vessels for the purpose. Native butter varies from $5\frac{1}{2}d.$ per lb. in northern province to $8d.$ per lb. in Buganda.

Exports of Animal Products

<i>Article.</i>	1909-10.		1916-17.		<i>Current Price.</i>
	<i>Quantity.</i>	<i>Value.</i> £	<i>Quantity.</i>	<i>Value.</i> £	
Ox and Cow hides . . .	7,879 cwt.	17,974	19,703 cwt.	52,420	17s. 9½d. per frasila.
Sheep-skins . . .	95,885 "	1,748	9,380 "	126	6s. per score.
Goat-skins . . .	727,294 "	27,482	398,448 "	16,095	17s. 4d. per score.
Calf-skins . . .	252 "	574	127 "	345	£1 per frasila.
Buffalo hides . . .	No figures.		61 "	273	£2 13s. 4d. per frasila.
Ghee . . .	2,862 cwt.	6,379	7,007 "	18,310	5½d. lb.
Elephant ivory . . .	31 tons	28,180	31 tons	8,778(?)*	7s. 5½d. lb.
Hippopotamus teeth . . .	No figures.		4,806 lb.	422	1s. 8¾d. lb.

* Figures from Uganda Blue-book.

Ivory

Uganda ivory is of fine quality. The largest tusks come from Bunyoro. Its export has been declining since 1911, when it reached the maximum of 38 tons, value £35,674. In 1915-16 it sank to 13½ tons, value £11,091 ; but in 1916-17 appears to have risen to 31 tons, the value of which is given in the official returns at £8,778.

. FISHERIES

Fishing in Uganda is considerably restricted by the provisions of the Sleeping-Sickness Ordinance. It is forbidden on Lakes George and Edward, and the Semliki river ; and only permitted in specified areas of Lakes Victoria and Albert. Two motor-boats and two ordinary boats work in Murchison Bay, but there is no estimate of the value of the catch. Twenty-six canoes work from Entebbe, the annual value of the catch being about £400 a year. At Jinja the members of the Kisingi Club fish the Ripon Falls for their own sport, and natives spear numbers of large fish from the banks. Fishing from native canoes is general on Lakes Kioga, Wamala, Salisbury, and Gedge, on the Victoria, Nile, and Kafu rivers, and the north-eastern part of Lake Albert. The whole catch appears to be consumed locally. For the principal edible species obtained, see Fauna.

MINERAL PRODUCTS

. *Iron*

The country abounds in haematite iron and in ordinary iron ore. Small native workings exist in Masaka, Hoima, Gulu, Toro, Ankole, and Kigezi. The Baganda and Banyoro are skilful iron-workers and manufacture spears, knives, hatchets, and the short hoes which are the chief agricultural implement. So far, no iron has been exploited by Europeans.

Other Metals

There is a deposit of plumbago near Kajura in Hoima. Samples tested contain 30 per cent. of pure plumbago. It is used by natives for colouring pots. Traces of graphite have been found in Buganda and Bunyoro, of copper in Busoga, and of gold in Bunyoro and the mountains north-west of Lake Rudolf.

China-clay

Valuable deposits of white china-clay are said to underlie the red earth in many districts.

Building-stone, &c.

A hard white stone is quarried at Mubango hill, Mengo ; and there are small quarries of road metal near Entebbe. The White Fathers have slate quarries at Koki (Masaka) and lime is worked at Tororo in Bukedi.

Salt

Salt is obtained by evaporation from several of the saline crater lakes north-east of Lake Edward. From Katwe and Kasingi lakes a salt valued at about 2 Rs. per 60 lb. is procured, in which considerable trade is done with natives from the Congo, Tanganyika Territory, Buganda, and Ankole, who come long distances to obtain it. It is highly valued by cattle-owners. The spread of sleeping-sickness among the salt-workers and traders has much diminished this traffic.

CHAPTER X

TRADE, FINANCE, AND INDUSTRY

Imports and Exports—Transit and Re-export Trade—Local Trade—
Banking—Industries—Labour.

IMPORTS AND EXPORTS

THE following are the values of Uganda trade for the statistical year preceding the outbreak of war and the first three years of the war :

	<i>Gross Imports.</i> ¹	<i>Transit.</i>	<i>Gross Exports.</i> ²	<i>Exports of Uganda Produce.</i>
	£	£	£	£
1913-1914 ³	1,021,255	81,094	607,253	511,679
1914-1915	588,958	40,820	657,346	532,173
1915-1916	693,383	45,535	593,755	Figures not available
1916-1917	1,296,100	346,205 ⁴	1,076,904	„

The trade of the Protectorate suffered, and at first severely, through the war. The recruitment of labour for military purposes interfered with production, while the dislocation of traffic on the Uganda Railway, and the increasing shortage of shipping reduced, and at times almost extinguished, the ordinary transport facilities.

On the next page is a comparative statement of the principal foodstuffs and raw materials exported from Uganda during the statistical year preceding the war (1913-14), and the year 1916-17.

Cotton exported from the Protectorate in 1903-4 was valued at £6 ; since that time the amount has rapidly increased and cotton is now the most important of Uganda exports.

¹ Gross Imports include goods in transit.

² Gross Exports include both goods in transit and goods re-exported.

³ The importation of specie in this year amounted to £123,993.

⁴ This figure includes bullion from the Belgian Congo to the value of £248,000.

<i>Commodity.</i>	1913-14.		1916-17.	
	<i>Quantity.</i>	<i>Value.</i> £	<i>Quantity.</i>	<i>Value.</i> £
Cotton (Ginned) . .	85,217 cwt.	272,366	77,961 cwt.	348,880
„ (Unginned) . .	44,130 „	45,321	32 „	59
Coffee . .	12,252 „	23,167	17 „	680
„ (Husked) . .	—	—	31,136 „	81,323
„ (in parchment) . .	—	—	17,473 „	32,616
Hides . .	13,837 (No.)	52,926	19,764 (No.)	54,693
Chillies . .	7,208 cwt.	8,247	13,317 cwt.	27,328
Sim-sim Seeds . .	17,919 „	10,449	38,090 „	21,318
Ghee . .	4,851 „	12,507	7,007 „	18,310
Skins, Calf . .	1,052 „	4,204	127 „	345
„ Goat . .	464,987 (No.)	29,037	398,448 (No.)	16,095
„ Sheep . .	59,544 „	1,615	9,380 „	126
„ Miscellaneous . .	3,759 „	247	1,582 „	224
Cotton Seeds . .	134,128 cwt.	13,499	109,213 cwt.	10,220
Ivory . .	410 „	23,678	602 „	8,778
Rubber (Plantation) . .	174 „	2,934	643 „	5,856
„ (Wild) . .	93 „	1,107	3½ „	40
Live-stock . .	1,282 (No.)	1,991	1,768 (No.)	5,954
Ground Nuts . .	7,671 cwt.	3,740	3,640 cwt.	1,767
Sim-sim Oil . .	36 „	71	387 „	725
Timber . .	2,171 „	766	1,533 „	567
Cocoa . .	—	—	257 „	562
Hippopotamus teeth . .	102 „	766	43 „	422
Jaggree . .	216 „	193	520 „	310
Flour . .	5 „	4	40 „	44
Salt . .	118 „	76	119 „	81
Silk Cocoons . .	236 „	479	19 „	0

The chief difficulty experienced by the trade has been the lack of transport facilities in Uganda itself, the small native cultivators having been compelled to carry their crops for long distances to the nearest cotton market. As a result of this portions of the annual crop have been in the past allowed to rot. The building of the Busoga Railway and the improvement generally of communications in the Eastern Province have largely succeeded in overcoming this difficulty, although human portage is still necessary.

The crop is usually disposed of to middlemen, Indians mainly, who in turn sell it to the ginning companies. Originally the crop was exported in an unginning condition, but is now almost entirely ginned prior to export. The ginner, among whom there are a few Indian merchants, sell the ginned cotton in the Liverpool market, and latterly in Bombay also. There

is no market for Uganda 'futures'; the 'spot' cotton in Liverpool previous to the war was considered to be second in quality to Egyptian and commanded a premium of from $\frac{1}{2}d.$ to $1d.$ per lb. over American middlings. During the war the price rose to from $4d.$ to $6d.$ over. The length of the Uganda staple ensures a ready market, though the prices ruling during the war have been abnormally high. The best cotton comes from Busoga and Bukedi.

The export for the statistical year 1916-17 exhibited a decrease on that of the previous year, though, owing to the high prices, the value was greater. In the year 1913-14 the bulk of the cotton went to the United Kingdom, a fair quantity to Germany, and inconsiderable amounts to Spain, France, Italy, Belgium, and Holland. During the war, however, the trade has been diverted, to a considerable extent, to India, which in 1916-17 took cotton valued at £30,321, while, during the quarter ending March 31, 1918, India took six times as much as the United Kingdom.

Considerable quantities of cotton seed are exported, but as this commodity is bulky and low-priced the export fluctuates according to freight charges.

In the statistical years 1913-14 and 1914-15, the value of the export stood as high as £28,000. Nearly all came to the United Kingdom, which is the chief buyer of this commodity.

Next in importance to cotton is coffee, which only began to be exported in any quantity in 1911-12, when the export was valued at £383. Since then the culture has developed, and, after a serious set back through blight, from which it is now said to be recovering, it was in 1916-17 exported to the value of £116,609. Up till recently most of the coffee was exported in parchment, that is to say, unhusked, but the greater part is now hulled before shipment. On the London market the best Uganda coffee has on occasion fetched as high a price as best Nairobi, but the average price is not so good. Nairobi coffee is said to be amongst the best kinds on the market. The United Kingdom takes almost all the Uganda coffee, although during the war small quantities have

been exported to Holland, Zanzibar, Italy, Italian East Africa, Arabia, India, and Egypt.

Busoga is said to be one of the chief sources of the world's supply of small chillies. The amount and value of the export varies greatly in accordance with a fluctuating demand. In 1913-14 the United States of America was the most important buyer, with Egypt next; a fair proportion went to France. In 1915-16, one-third of the export went to Egypt, and the remainder was divided equally between the United Kingdom, the United States, and France.

Although the best grade of cocoa is considered to be very saleable it is not yet exported in any quantity. The first consignment from the Government plantation at Kampala realized 80s. per cwt. A few sales in the London market were lately reported at prices from 65s. to 80s. per cwt.

Up to within comparatively recent years only wild rubber was exported from Uganda and the best qualities were very highly valued. Now, however, the export consists almost entirely of plantation rubber. One company claims to be able to put Para rubber in the market at a cost of from 9d. to 1s. per lb. Recent selling prices fluctuated between 2s. 2d. and 4s. per lb. Nearly the whole of the export comes to the United Kingdom.

The export of sim-sim seeds has steadily increased. The present price, 32s. per ton ex-ship is a controlled price. In 1913-14 Germany and Italy were the chief buyers of this commodity, and Germany took most of the Uganda ground-nuts, with France second. During the war, France and Italy have been the chief buyers of these products. The oil extracted from the seeds is edible and is much in demand.

The export of hides is next in importance to coffee. Ox and cow hides are exported in large quantities, buffalo to a much less extent. In 1913-14 the United Kingdom and France were the chief buyers, while Germany, Belgium, Italy, and Austria-Hungary also took quantities. The most noticeable development, since the outbreak of war, apart from the disappearance of Germany and Austria-Hungary from the market, is the great increase in the quantity taken by Italy.

There was, before the war, a considerable export of skins chiefly to the United States, and also in much less quantities to France. These two countries were in 1915-16 still the principal buyers.

Uganda ivory, which in 1913-14 went chiefly to the United Kingdom, Zanzibar, and the United States in 1916, was mainly exported to India.

In 1913-14 the United Kingdom and foreign countries each contributed roughly two-fifths of Uganda imports and the British colonies, the remaining two-fifths. In 1916-17 the statistics show roughly one-third from each source, but this equality is only apparent, as the imports from foreign countries include a large consignment of bullion in transit from the Belgian Congo. In reality the imports from foreign countries represented only 24·6 per cent. of the total import trade.

The United Kingdom competed in the market for nearly every kind of manufacture and supplied the bulk of the building material, cement, cutlery, chemicals, firearms, hardware, agricultural implements, industrial machinery, brass and copper ware, galvanized iron sheets, rubber manufactures, soap, stationery, motor vehicles, bicycles, and with the exception of 'americani' nearly all the cotton cloth.

The remarkable feature of the development during the war has been the increasing share of the British possessions. This is largely confined to India and its dependencies whose contribution increased enormously in 1916-17, due in great measure to an extraordinary expansion of the trade in 'americani' cloth of Indian origin. India also supplied various foodstuffs in considerable quantities, the chief being *dhall*, flour, sugar, and molasses, also quantities of rice, wheat, tea, and butter. Indian manufactures other than 'americani' are 'bafta' cloth, cotton blankets, candles, boots and shoes, brass and copper ware, and silver specie.

[The following is a comparative statement of the principal imports into the Uganda Protectorate for the statistical year previous to the war (1913-14) and the year 1916-17.]

<i>Commodity.</i>	1913-1914.		1916-1917.	
	<i>Amount entered for home consumption.</i>	<i>Total Import.</i>	<i>Amount entered for home consumption.</i>	<i>Total Import.</i>
		<i>Value of Total Import. £</i>		<i>Value of Total Import. £</i>
Food, Drink, and Tobacco	—	109,553	—	155,989
Coal	13 cwt.	2	—	—
Hides	15 "	157	312 cwt.	936
Ivory	11 "	21,077	609 "	27,741
Petrol, Kerosene	182,830 gals.	15,533	139,589 gals.	15,167
Other kinds	32,879 "	4,552	34,864 "	6,716
"	18,327 "	3,269	1,438 "	3,772
Other kinds of Oil	1 cwt.	13,832	134 cwt.	1,324
Rubber	656 (No.)	33	3,084 (No.)	71
Goat-skins	12,172 cwt.	9,801	948 cwt.	492
Timber	1,750 "	1,568	54 "	92
Unginned Cotton.	379,443 rnds.	3,239	—	899
Ammunition	2,261 pkgs.	30,739	—	16,307
Wearing Apparel.	12,776 cwt.	22,242	10,792 cwt.	24,589
Bags and Sacks	879 "	4,988	118 "	874
Beads	449,531 (No.)	38,086	246,820 (No.)	33,541
Cotton Blankets	—	5,847	—	1,634
Building Materials	21,125 cwt.	7,323	9,561 cwt.	6,853
Cement	1,119 pkgs.	9,096	—	9,758
Chemicals	1,204 "	4,828	841 "	4,200
Earthenware	151 "	3,446	—	1,601
Electrical Goods	1,005 "	4,761	—	784
Furniture	—	4,083	—	510
Haberdashery	7,591 "	31,074	955 cwt.	8,472
Hardware (not brass or copper)	7,408 "	13,544	—	19,705
Agricultural Implements	2,737 "	5,685	12,796 (No.)	2,351
Lamps	—	—	—	—

IMPORTS AND EXPORTS

267

Commodity.	1913-1914.		1916-1917.	
	<i>Amount entered for home consumption.</i>	<i>Total Import.</i>	<i>Amount entered for home consumption.</i>	<i>Total Import.</i>
				<i>Value of Total Import. £</i>
Unwrought Leather	101 cwt.	103 cwt.	67 cwt.	728
Boots and Shoes	11,746 pairs	13,002 pairs	7,031 pairs	3,791
Lime	1,636 cwt.	1,636 cwt.	355 cwt.	84
Machinery and Parts (Industrial)	2,772 pkgs.	3,104 pkgs.	1,827 "	7,205
" " (Agricultural)	301 "	301 "	819 "	4,739
" " (Other kinds)	905 "	964 "	827 "	5,088
Matches	4,238 "	4,803 "	27,558 gross	5,229
Metals (Brass and Copper Wire)	1,490 cwt.	1,490 cwt.	113 cwt.	1,107
" (Galvanized Iron Sheets)	17,355 "	17,486 "	1,749 "	2,576
" (Iron and Steel Wire)	—	—	195 "	951
" (Other Iron and Steel)	5,599 pkgs.	5,823 pkgs.	3,041 "	12,787
Rubber Manufactures	—	—	—	423
Soap	1,625 cwt.	1,625 cwt.	8,035 "	25,644
Stationery	—	—	—	11,638
Rope and Twine	—	—	767 "	1,705
Railway, Tram, and Road Materials	—	—	—	208
Vehicles & Parts (Other than Motor)	834 pkgs.	855 pkgs.	—	1,456
" (Motor)	125 "	125 "	—	6,208
" " (Motor Bicycles)	219 "	238 "	—	9,096
" " (Bicycles)	1,131 "	1,136 "	—	17,108
Wool and Woollen Yarns, other	—	—	—	—
than Blankets	63 "	92 "	—	1,749
Yarns, &c. (Americani)	7,581,197 yds.	7,584,597 yds.	7,893,226 yds.	132,700
" (Bafta)	3,222,558 "	3,225,978 "	1,822,018 "	32,486
" (Other kinds)	8,886 pkgs.	10,960 pkgs.	—	197,702
Specie	—	—	—	181,065
Bullion	—	—	—	248,508

British East Africa is responsible for various foodstuffs, lime, and carts.

The two foreign countries which before the war were interested more than others in Uganda trade were the United States and Germany. The former supplied large quantities of petroleum and the bulk of the 'americani', while Germany competed in nearly every kind of manufactured goods, predominating in the market for beads, cotton blankets, and agricultural implements. The last were cheap hoes principally similar in appearance to the native variety. The last-named are now supplied by the United Kingdom.

During the war German goods except for those already in stock either in the British colonies or in captured territories, have, of course, disappeared from the market. The United States, while supplying a large quantity of the 'americani', has lost to India the first place in this market.

A country which has considerably increased its trade with Uganda during the war is Holland whence in 1916-17 commodities to the value of £46,852 were imported as against a value of £17,014 in 1913-14. In 1916-17 Holland held the market for cotton blankets, originally supplied mainly by Germany, and tobacco, besides supplying half the imported cheese.

From the Dutch East Indies in 1916-17 came quantities of petroleum.

The importation of foodstuffs into Uganda has fluctuated considerably on account of occasional failures of the local food supply. Each year, however, there is a regular importation of maize, *dhall*, flour, and rice, of which the sources are British East Africa, India, and what was German East Africa. British East Africa supplies maize, *dhall*, bacon, ham, butter, fruit, and vegetables. In 1916-17 the largest quantity of *dhall* came from India whence also came the bulk of the wheat and nearly half the sugar and molasses. Tanganyika Territory, then German East Africa, was the source of most of the imported rice. An attempt to popularize rice as a native food failed; like a good deal of the imported foodstuffs it is used to

feed the large Indian population. A considerable quantity of foodstuffs (in 1916-17 to the value of £26,000) is re-exported, to the Belgian Congo, chiefly.

Imported tobacco is mainly the shag variety which is made up by the natives into cigarettes.

Chief among manufactured imports are the various kinds of coarse cotton cloth of which 'americani' and 'bafta' are the most important. This cloth is put to a variety of uses. Bicycles also are in great demand among natives. Until the Germans began to supply a cheap iron hoe the natives preferred hoes of native make.

TRANSIT AND RE-EXPORT TRADE

Besides the ordinary trade there is a considerable transit and re-export trade chiefly with the Belgian Congo. The inwards trade is concerned mainly with manufactured goods, although provisions, liquors, and tobacco figure largely. The outwards trade is almost entirely ivory and rubber, and on occasion, bullion.

LOCAL TRADE

There is on the land frontiers and on the lakes an inconsiderable commerce in live-stock, foodstuffs, and native manufactures. Retail trade is in the hands largely of Indians and Goanese. One well-known merchant has *dukas* or shops in all parts of the Protectorate. These *dukas* supply a variety of articles and some of the better class deal in hides and ivory.

BANKING

There are two banks in Uganda the National Bank of India which has branches at Entebbe, Kampala, and Jinja, and the Standard Bank of South Africa with branches at Kampala and Jinja. The banking business is concerned to a great extent with the financing of the Uganda industries chiefly cotton and coffee. Originally this was done by means of overdrafts which were not paid off until the crop

had been marketed in Europe and the proceeds remitted to Uganda. By this method outlays of capital for further cultivation were delayed and a more expeditious system is now more in favour. The exporter, in one case the cotton ginner and in the other the coffee planter, now draws on the consignee, as soon as the produce is on shipboard at Mombasa, a bill, which he sells to the bank into which the proceeds are paid as soon as they are remitted. The advance is, therefore, made with the produce as security.

The Uganda Treasury Savings Bank, a government institution, has its head office at Entebbe and branches at Kampala, Bombo, Jinja, and Fort Portal.

INDUSTRIES

Industries in Uganda, other than that of agriculture, group themselves into three classes roughly according as they are engaged in by Europeans, Asiatics, and natives. Of the first class cotton ginning is the most important. The industry is practically restricted to the eastern province, where in 1917 there were fifteen ginneries, and to Buganda where there were seven. The northern province possessed one. Originally, stationary ginneries were distributed throughout the chief cotton centres, but as these were liable periodically to shift, movable ginneries are being gradually adopted. Although this industry is largely in the hands of Europeans a few of the big ginneries are owned by Indian merchants who are connected with the manufacturing industry in Bombay.

In connexion with coffee production machinery is used for pulping, and there is a company at Kampala which maintains a curing factory.

Industries in the second class are chiefly those concerned with the building and general artisan trades. These are nearly all in the hands of Indians and Swahilis, although the natives are gradually becoming qualified to compete. The latter are said to make good smiths. For the most part these industries are concentrated at Mengo and Entebbe.

In the third class are the native industries of mat and basket weaving and the manufacture of bark cloth. This last is a national industry of the Baganda, who select the barks of various species of trees, chiefly the fig tree, and after soaking it in water beat it out until it becomes pliable and suitable for making up into garments.

Hoima, in Bunyoro, is the centre of a native industry of iron manufacture, chiefly hoes and spears.

LABOUR

The demand for labour in Uganda exists, on a large scale, chiefly in the provinces of Buganda and the eastern province. To a very great extent it is required for portorage, and this again is very largely in connexion with the transport of the cotton crop. Uganda's dependence on human portorage has created a serious shortage which is being slowly mitigated by the extension of mechanical transport. This shortage is specially acute in Buganda which furnishes a large proportion of the labour of the Protectorate. The Muganda, however, is not as yet sufficiently developed to feel the need for continuous work and will not remain in employment for more than two or three months in the year. It is said that in Buganda the harassing demands of the chiefs have caused many of the peasantry to move to outlying districts. Recruiting through the chiefs, therefore, has operated to undermine their authority already weakened by the growing facilities for trade and travel. Compared with the Baganda the natives of the Eastern Province are more industrious. Here as in Buganda the transport of the cotton crop absorbs labour at a time when it should be employed in the preparation of the land for the principal food crops.

Military service, and the wholesale levy on the natives for the Carrier Corps, have caused an even greater dearth of labour.

Artisan labour originally wholly supplied by Indians and others of Asiatic origin is now beginning to be drawn from

among the natives. They are, for instance, used by the Government to drive motor lorries, but are said to be unable to carry out the simplest repairs. Natives, however, are being instructed by the Uganda Railway authorities in rivetting and smithy work and they are said to be proving adaptable and useful. The natives of Buganda and the eastern province make good pilots and sailormen generally.

The conditions of recruitment and employment are governed by the Masters and Servants Ordinance, 1913. By this ordinance labour agents must possess a permit from the Government; they can engage labourers only under written or oral contracts. Labour for foreign service, that is for any place outside the Protectorate excepting British East Africa, Zanzibar, or as sailors on the lakes, requires a written contract approved by the British administrative officials. Persons neglecting these conditions are liable to imprisonment with the option of a heavy fine.

Oral contracts are for periods not exceeding one month.

Magistrates are empowered to try cases brought by either a servant or an employer. They can inflict fines, award damages, annul contracts, enforce unfinished contracts, and in event of a refusal to comply with their decision, they can order imprisonment. Their powers over the servant are considerable. Disobedience, insolence, unsatisfactory performance of work, and desertion can be punished. Proceedings under the ordinance are ordered in accordance with the law relating to criminal procedure, although the magistrate can at discretion, allow the civil procedure.

The following is a statement of the average rate of wages as it was calculated at the head-quarters of each province during the statistical year 1916-17:

PROVINCES

<i>Employment.</i>	<i>Buganda.</i>	<i>Eastern.</i>	<i>Northern.</i>	<i>Western.</i>	
		<i>Per Annum.</i>			<i>Per Day.</i>
	£	£	£	£	d.
Field Labourers :					
Native Overseers .	8-24	12	6-16	2-3	—
Native Labourers :					
Buganda .	—	—	—	—	2½-4
Eastern .	—	—	—	—	2½
Northern .	—	—	—	—	2
Western .	—	—	—	—	2
Native Porters :					
Buganda .	—	—	—	—	2½
Eastern .	—	—	—	—	2½
Northern .	—	—	—	—	2
Western .	—	—	—	—	2
Domestic :					
Native Cooks .	7-24	9½	8-20	8-12	—
Swahili Cooks .	20-30	23	16-24	20	—
Native House-boys .	30-72	6½	6-16	7-8	—
„ Under Servants .	4	4	2-4	2-4	—
Trades (Carpenters, Masons and Blacksmiths) :					
Indian .	50-100	68	64-80	—	—
Swahili .	10-40	20	12-24	—	—
Native .	5-20	15	8-16	3-8	—

CHAPTER XI

UGANDA TOWNSHIPS

MANY of the proclaimed townships on this list are administrative and trade centres and cotton markets which have sprung into existence to meet local needs or feed the train and steamer service. Some are developing. Others still consist only of a group of iron or mud traders' huts, goods sheds, &c., inhabited during the cotton season (January-June) or other period of local activity, often deserted at other times. With the shifting of trade or opening of new markets they may vanish. As some cotton ginneries are moveable, villages established round them may be temporary. All population figures, even when obtainable, are misleading; first, because the population fluctuates and may be large when ginneries or plantations are working, and little or nothing in the slack season, secondly because natives live where possible outside the township area, in order to cultivate their gardens. The traders in small centres are mostly Indians, but also Arabs, Swahilis, and Somalis. The native population is rural in type and does not tend to collect in towns.

The recent abnormal rise in the levels of Lakes Kioga and Albert has flooded out some of the stations on their banks and it is impossible at present to say what will be its ultimate effect on the lake ports.

Agu (Teso).

On the Bisina river, at the head of the Sambwe-Agu canal, east of Lake Kioga.

Road. To Kumi (metalled), 17 miles. (See Route 81, p. 317.)

Canal. At present only canoes or lighters capable of

holding 10 tons can use the canal above mile 12 ; and goods must be brought to this point or Sambwe to join the steamer. Improvement of the channel is projected.

Port. Two causeways with pier, and warehouses 100 by 25 ft. The recent 10 ft. rise of Lake Kioga has put these under water and it is impossible to say what is their present condition.

Description. Agu is an important centre of the cotton trade and has a considerable native and Indian population when the ginneries are working. It is the port for Ngora. There are Indian stores, open in the season only (January-June). The necessity of sending the ginned cotton by lighter or canoe to Sambwe is a disadvantage, as a certain proportion is stained or damaged in the process.

Trade. In 1916-17 Agu exported 2,085 tons of goods, mainly cotton, and imported 757 tons.

Atura or Foweira (Bunyoro).

Alt. 3,470 ft. On the Victoria Nile, 62 miles below Lake Kioga.

Roads.

To Masindi, 52½ miles. 4½ hours by motor cycle. (See Route 90, p. 319.)

To Masindi Port, 40 miles.

Steamer about once a fortnight. Canoes for crossing the Nile at Atura ferry.

Port. Pier 195 by 60 ft., insufficiently piled in front. Native clerk in charge.

Description. Atura marks the northern limit of navigation on the Victoria Nile. Below it are 50 miles of rapids ending in the Murchison falls. There is no resident population at the port, but over 300 houses and huts in the neighbourhood. It is the best port of communication for northern province beyond Bunyoro.

Trade. The principal exports are hides, sim-sim, and a little cotton. In 1916-17 exports by steamer amounted to 1,652 tons and imports to 361 tons. The port was used by 3,749 steamer passengers.

Bombo (Mengo).

Alt. 3,967 ft. About 22 miles north of Kampala. Pop. (1911) 920. P. O. T. Telephone between the P. O. and military offices (5 extensions). Meteorological station.

Motor service to Kampala.

Roads.

To Boa, 9 miles. Motors and carts.

To Kampala, 22 miles. Motors and carts.

To Nakasongola, 51 miles. Motors and carts.

Description. A military training centre and head-quarters of the K. A. R. The removal of the camp to Entebbe is under consideration. Good water supply from spring wells. Military hospital, consisting of one ward and four grass bandas, with seventy beds in all.

Bugondo (Teso).

On the north-east arm of Lake Kioga, opposite Bululu.

P. O. (letters only). T.

Road to Serere, 15 miles. (See Route 84, p. 318.)

Ferry to Bululu.

Steamer to railhead at Namasagali.

Port. An earthwork pier, which needs extending and repiling (1916).

Description. Bugondo is now the most important trading centre, and promises to be the biggest town, on Lake Kioga. It is well laid out, and less unhealthy than Bululu, though it lies in a plague area.

The Bukedi Cotton Co., British Cotton Association, and B. E. A. Corporation have permanent ginneries here. That of the B. E. A. Corporation has up-to-date machinery driven by suction gas generated from cotton seed, and capable of dealing with 100,000 lb. of raw cotton in 9½ hours. It has an electric light plant.

Trade. The exports are ginned cotton, and cotton seed. In 1916-17 they amounted to 3,244 tons. Imports were 1,199 tons. 2,475 steamer passengers. A considerable increase of trade may be looked for after the war.

Bukakata (Buddu).

On the west shore of Lake Victoria, opposite the Sese Islands.

Temporary telephone to Masaka.

Road to Masaka, 24 miles. Motor. (See Route 28, p. 307.)

Steamer several times a month (weekly service advertised). From Kisumu, 203 miles.

Port. A pier 350 ft. long is projected. Goods shed 40 by 20 ft.

Description. Bukakata is the port for Masaka and Mbarara, and during the military operations on Lake Victoria served as an Anglo-Belgian base.

Trade. The principal exports by steamer are hides and ghee. In 1916-17 exports amounted to 794 tons and imports to 1,492 tons. There were 1,902 passengers. A certain amount of trade with Ruanda and Kigezi passes through Bukakata.

Butiaba (Bunyoro).

On the east shore of Lake Albert, 47 miles from Masindi.

P. O. T. Telephone from P. O. to Marine Office. Headquarters of Lake Albert flotilla.

Motor service from Masindi Port (five Government vans).

Roads.

To Masindi, 47 miles. Motor. Partly completed 1917. Road-terminus at Bukumi, 7 miles from Butiaba. (See Route 88, p. 319.)

To Hoima, 35½ miles. For carts and cycles to top of escarpment. (See Route 91, p. 320.)

Steamers. Bi-monthly service to Nimule and monthly to Kasenge and Mahagi (Belgian Congo).

Description. A small natural deep-water harbour, formed by a sand-spit 2½-3 miles long and 100 yards wide running out in a slight curve towards the centre of the lake with a return arm at right angles from the end. The few houses are about half-way along the main spit. There is no path, and absolutely no shade.

No hotel accommodation. Native hospital: 3 beds.

Good water-supply from Lake Albert. Excellent fishing. Nile perch up to 200 lb. and tiger-fish to 15 lb. are plentiful.

Owing to the great rise of Lake Albert in 1916-17 Butiaba has proved unsuitable as a permanent site and the removal of the station to another position is contemplated. This is, however, a matter of some difficulty, Lake Albert being very deficient in harbours.

Trade. The through motor service from Masindi Port, connecting with the Busoga Railway, is expected to result in considerable trade on this route with the Belgian Congo.

Entebbe.

Alt. 3,863 ft. On the north shore of Lake Victoria, 23 miles SSW. of Kampala. Pop. (1911) 9,569.

P. O. T. Runner mails to Fort Portal, Iganga, Mbale, Nabieso, Hoima, Masindi, Nimule, and Gondokoro. Telephone exchange connecting with the Government offices. Meteorological station.

Motor-service daily to Kampala, Rs. 6 for Europeans, and to Port Bell Rs. 8, 100 lb. of luggage allowed.

Jinricksha to Kampala in $3\frac{1}{2}$ hours, Rs. 6.

Roads.

To Kampala, 24 miles. Motors.

To Masaka via Mbale, $76\frac{1}{2}$ miles. Rough motor road. (See Route 40, p. 309.)

To Mubendi.

Steamers. Regular service to and from Kisumu and Jinja. Port of call on circular trips round the lake (weekly in normal times). Steamer to Port Bell (for Kampala), 23 miles.

Port. Two piers: one, 216 ft. long, used by the Uganda Marine Service and berthing two steamers. Custom house at the foot of the pier. Goods shed 96 by 20 ft. Sixth order dioptric light.

Description. Entebbe was established in 1893 and declared a township in 1903. It is the administrative capital of Uganda and chief European colony, and contains the Government house, and court house.

A broad road leads from the pier through the botanic

garden, which contains many fine trees, the remains of the primaeval forest. The Government house stands near the lake facing east, in 15 acres of ground. There is an excellent European hotel (the Victoria) facing the lake. The Goanese and Indian stores can supply provisions and most travelling requisites.

Institutions. European hospital; 5 rooms, with 6 beds in all. General hospital; two Asiatic wards and three native wards. Isolation ward. C.M.S. church and school for 120 boys and girls. R.C. Mission (White Fathers) and school for 90 boys and 55 girls, about 1 mile out. European cemetery. Court house and prison. Golf links, tennis courts, club house.

Trade. This has been greatly reduced by the war. In 1912-13 Entebbe exported 3,428 tons to Kisumu, and in 1913-14 2,273 tons; but in 1916-17 the total exports were only 862 tons. Imports were 1,509 tons. Arriving and departing passengers numbered 7,881. The main exports are cotton and cotton seed. National Bank of India.

Industries. Timber yards and cabinet works. Steam power saw-mills. Blacksmiths and carpenters shops. Jagree (crude sugar) factory. Cotton ginnery and baling press. Government printing press. Bark-cloth and basket making. Fishery (26 native canoes) work about £400 a year.

Fort Portal (Toro).

Alt. 5,200 ft. On the Mpanga river, north-east of the Ruwenzori range. Pop. (1911) 50 Europeans and large native population, roughly estimated at 20,000.

P. O. T. Runner-mail to Entebbe, via Mubendi. Meteorological station.

Roads.

To Kampala, 202 miles. Cycles and carts. (See Route 54, p. 311.)

To Hoima, 90 miles. (See Route 55, p. 311.)

To Mbarara via Ibanda, 105 miles. (See Route 56, p. 311.)

To the Semliki river boundary, 30 miles. (See Route 58, p. 312.)

To the Kilo gold-mine, 120 miles.

Communications. In dry weather motors can reach Kampala in 2 to 3 days; or motor-cycles in much less. At other seasons, bullock-carts go from Fort Portal to Matiri, 40 miles; thence by motor to Kampala.

Description. Fort Portal is the centre of Toro district, and residence of the Mukama (king) and principal chiefs. It is a frontier customs station. The township is an area described by a circle of 2 miles' radius with the district commissioner's office as its centre. There is a good water-supply from Mpanga river. Important mission-station (C.M.S.). Agency of the B.E.A. Corporation. Small Asiatic bazaar.

Institutions. Native hospital: one ward, 4 beds. Large and well-equipped C.M.S. hospital.

Climate bracing, with cool nights.

Gogonya (Bukedi).

On an arm of Lake Kioga in the extreme north-west of Bukedi, due south of Agu.

Road to Palisa (metalled) under construction. (See Route 80, p. 317.)

Steamers. Port of call for the Lake Kioga steamer-service since June 1915.

Port. A temporary pier, Busoga railway marine office, and mud and wattle store buildings, erected February 1916.

Description. An important trade-centre and outlet for the produce of Palisa country and the adjacent part of Teso, with ginneries (since December 1915).

Trade. In 1916-17 exports amounted to 168 tons and imports to 144 tons. The traffic will probably increase rapidly with the return of the cotton market to normal conditions.

Gulu (Gulu).

On the south-east extremity of the Bahr el-Jebel-Victoria Nile water-parting about 40 miles north of Atura. Pop. (1911) 165.

P. O. (letters only). Meteorological station.

Roads.

To Masindi via Atura, 83½ miles. (See Route 90, p. 319.)

To Kitgum via Abia Ferry, 57 miles. (See Route 95, p. 321.)

To Port Liri via Boroli, 65 miles. (See Route 96, p. 321.)

All suited to handcarts and motor-cycles.

Description. Gulu station dates from 1911, when the district head-quarters formerly at Koba on the Nile were transferred here. There is an ample water-supply from a spring and well. Prison, and native hospital consisting of one ward and 2 huts.

Hoima (Bunyoro).

Alt. 3,801 ft., 34 miles south-west of Masindi on the main road from Kampala to Lake Albert. Pop. (1911) 1,153. About 10 Europeans.

P. O. T. Runner mail to Kampala, Entebbe, Masindi, Nimule, and Gondokoro. Meteorological station.

Roads.

To Kampala, 128 miles. Carts and light motors.

To Masindi (new road), 34½ miles. (See Route 89, p. 319.)

To Butiaba, 35½ miles. Carts and cycles from the top of Lake Albert escarpment. (See Route 91, p. 320.)

To Fort Portal, 100 miles approx. Cycles. (See Route 93, p. 320.)

Description. Hoima was originally one of the series of forts encircling Bunyoro and was first built in 1894, 2 miles north of the present station to which it was removed for greater healthiness in 1903. Until 1912, when it was superseded by Masindi, it was the head-quarters of Bunyoro and native capital. It is now the seat of an assistant district commissioner. There is a large native population; and chiefs are beginning to build good houses in the outskirts. Market, and a few shops. Excellent water-supply from river and wells.

Institutions. Prison. Native hospital: one ward, with a partition for women. Eight beds in all. C.M.S. school for sons of chiefs, about 50 boys. R.C. Mission (White Fathers) schools, 98 boys, 39 girls.

Iganga (Busoga).

On the Jinja-Mbale road, 28 miles north-east of Jinja.
Pop. (1911) 630.

P. O. (letters only). T. Runner mail to Jinja, Kampala, Entebbe, Mbale, Kumi, and Nabieso. Meteorological station.
Motor-lorry to Jinja daily.

Roads.

To Jinja, 28 miles. Motor. (See Route 70, p. 314.)

To Mbale, 66 miles. Cycles. (See Route 70, p. 314.)

Description. Iganga was until 1900 the Government station for Busoga. It is an important trade-centre, and mission station.

Institutions. C.M.S. technical native schools (chiefly carpentry). R. C. Mission (Mill Hill) schools for 100 boys and 50 girls.

Jinja (Busoga).

Alt. 3,722 ft. At the exit of the Nile from Lake Victoria.
Pop. (1911) 984 ; about 40 Europeans.

P. O. T. Telephone. Runner mail to Kampala, Entebbe, Iganga, Mbale, Kumi, and Nabieso. Meteorological station.

Railway to Namasagali, 62 miles. *Station* 10 minutes from the jetty. *Motor-lorry* to Iganga, 28 miles, daily.

Roads.

To Mbale, 94 miles. Metalled for the first 36. Bullock-cart ; no longer fit for motors.

To Mubango, 14 miles. Motor.

To Kampala. (See Route 3, p. 306.)

To Kakindu.

Steamers. Port of call for Uganda Railway steamers, normally twice a week each way. To Kisumu, 149 miles.

Ferry to Bugungu, 25 cents each way.

Port. Jinja is the terminal port on Lake Victoria of the Busoga Railway, which runs out on to a pier 246 ft. long capable of berthing two steamers. The duplication of this pier is projected. There are 3 goods-sheds, respectively 192 by 20, 100 by 42, and 100 by 40 ft. Custom house. Native harbour for canoes. Sixth-order dioptric light.

Jinja is the principal outlet for the produce of the Bukedi, Mabira, and Lake Kioga districts and serves a large area.

Description. The town, which has been since 1900 the Government station for Busoga, lies well above the lake on an open breezy hill, about $\frac{1}{4}$ of an hour from the landing-stage at Ripon falls, and at the head of Napoleon Gulf. It is the commercial capital of Busoga, and contains banks, shops, and stores, and a hotel, the Busoga (terms 8 to 9 Rs. per day). The insanitary Indian bazaar is unfortunately too near the European quarter; and in some cases European houses adjoin native dwellings. Plans have been prepared providing for a neutral zone between European and coloured quarters. The clearing of bush and rough grass and making of smooth lawns which do not shelter *glossina* or mosquitoes, has improved the health and beauty of the station.

Unfortunately three ginneries are established at Jinja, involving the constant risk of the introduction of plague, endemic in the surrounding cotton districts, through rats or infected lint. It is probable that these will be removed outside the township.

The water-supply from the Nile is good. In the Ripon Falls, Jinja has a source of enormous but as yet unutilized water power. The fishing at these falls is magnificent. The Jinja Fishing Club has made bridges to the islands below them, from which the best sport is obtained.

Institutions. European hospital: 2 wards, 4 beds. Native hospital: 1 ward, 20 beds. Part is divided off for Asiatics. Isolation and quarantine buildings. Veterinary office and store. C.M.S. elementary school, about 100 boys and girls. R.C. Mission (Mill Hill) and school, about 26 boys and 37 girls. Prison.

Trade and Industry. Cotton-ginning is the chief industry. There is a locomotive workshop since 1916. Motor repairs can be executed. Branch of the B.E.A. Corporation. National Bank of India. Cotton, cotton seed, and chillies are the main exports. 10,976 tons of produce were exported in

1916-17. Imports amounted to 12,467 tons. There were 18,677 rail and steamer passengers.

Kabale (Kigezi).

65 miles in a straight line south-west of Mbarara and 8 miles east of Lake Bunyoni, on the river Kiriruma.

P. O. (Letters only.)

Roads.

To Mbarara, 76 miles. Cycles. (See Route 64, p. 313.)

To Lutobo, 5 hours. (See Route 65, p. 313.)

To Bufundi via Lake Bunyoni, 1½ hour. (See Route 66, p. 314.)

To Rusumburu, 13½ hours. (See Route 67, p. 314.)

Description. Kabale is a small frontier station on the border of the Ruanda country and is the first English post on the road from Tanganyika Territory. It will when developed be one of the most picturesque stations in Uganda. The Government building, offices, and police lines are on Kabale hill, and the small European quarter on Makanga hill, sloping up from Kabale. There are golf links, tennis courts, &c. Prison.

Kabiramaido (Lango).

8½ miles north of Kelle (Lake Kioga).

Road to Kelle, 8¾ miles (metalled). (See Route 86, p. 318.)

Description. Kabiramaido is an important trading centre and cotton market, with a ginnery. There are two cart-repairing shops and an Indian oil-press. It is served by the Busoga Railway Marine Steamers calling at Kelli.

Trade. In 1916-17 it exported through Kelli 815 tons of produce. Imports amounted to 195 tons. There were 1,638 steamer passengers.

Kachung (Lango).

At the most north-east point of Lake Kwania.

Road. To Lira, 26 miles, metalled (under construction). (See Route 87, p. 318.)

Port. An earthwork pier 150 by 74 ft. (not piled) approached by a bank 24 ft. wide, with a total length of 840 yds., is under construction. There is a poor tram line. A goods-shed is projected.

Trade. Kachung is the port for Lira. In 1916-17 its exports were 186 tons and imports 30 tons. Steamer passengers 961.

Kalaki (Lango).

12 miles north of Bululu. A cotton centre with a ginnery, so far served by the port of Bululu. In future access will be by Sangai, which is 7 miles nearer. (See Route 85, p. 318.)

Kaliro (Busoga).

ENE. of Luzinga. Pop. (1911) 820.

Roads.

To Luzinga, 26 miles. Motor, connecting with Busoga Railway at mile 26. (See Route 71, p. 315.)

To Palisa, about 28 miles.

To Iganga, 20 miles.

Description. Kaliro is the principal trade centre of north-east Busoga, exporting its produce via Luzinga. The C.M.S. and Mill Hill missions have establishments here.

Kampala (Mengo).

Alt. 3,905 ft. About 7 miles west of the head of Murchison Bay, Lake Victoria, and 24 miles north of Entebbe. Pop. (1911) of Nakasero 2,953, of Kibuga 3,244. Large native population outside the township areas; which has been roughly estimated at 60,000. About 500 European settlers in the neighbourhood. The town is growing rapidly.

P. O. T. Telephone connecting Government offices and trunk line to Entebbe. Runner mails (1) to Jinja, Iganga, Mbale, Kumi, and Nabieso; (2) to Hoima, Masindi, Nimule, and Gondokoro. Meteorological station.

Railway to Port Bell (Luziro) connecting with Lake Victoria steamship service. At present, road traffic competes strongly with this, owing to the high freights and short length of line.

Motor service (Government) to Entebbe, daily. Also services to Bombo and Matiri.

Roads.

To Entebbe Pier, 25 miles. Motor.

To Bombo (22) and Lubenga river, 56 miles. Motor.

To Fort Portal, 202 miles. Motor to Matiri, 161 miles, and all the way in dry weather. (See Route 54, p. 311.)

To Mukono, 12 miles. Motor.

To Bugungu (opposite Jinja) via Mabira, 55½ miles. Motor in dry weather.

To Kitosi, 50 miles. Motor in dry weather.

To Hoima, 128 miles. Motor in dry weather.

To Mubendi, 98 miles. (See Route 38, p. 309.)

Description. Kampala is the oldest European station in the Protectorate. It was occupied in 1890, and taken over by Government in 1893. It is now the largest town in Uganda and is the native and commercial capital, the seat of the Kabaka (king) of Buganda and Lukiko (native Parliament).

The principal houses are built in clusters on the tops of seven hills, divided by valleys and approached by steep roads. The whole is buried in numerous banana plantations, in which the huts of the natives are concealed. These lie outside the township area and are therefore exempt from rates. Below the principal hill is the Navikubu swamp, a large area of which has now been drained, cleared, and laid out in gardens, with a consequent reduction in malaria.

The central, or Kampala hill, is crowned by an old fort, now used as a museum. Mengo hill is the residence of the king and principal chiefs, and meeting-place of the Lukiko. Nakasero hill is the European head-quarters. The Government offices and chief European houses are on the upper slopes, with the main stores and banks below. Three hotels. The buildings extend down the slopes of the hill almost to the swamp. The crowded and insanitary Indian bazaar, which was a standing menace to the town and in immediate contact with European dwellings, was fortunately burnt down, and replaced by more substantial and better-planned buildings in 1916. Considerable improvements have been made in this part of Kampala since the war; the township is being laid out on more scientific lines. As a result plague, which was endemic in the lower town, has almost disappeared, and

malaria and blackwater fever are greatly reduced. The water-supply for the European quarter consists of two springs in a cutting at the foot of Nakasero hill. It is unprotected and its position exposes it to possible pollution. A public water-supply direct from Lake Victoria is the great need of the town.

Kololo hill, adjoining Nakasero, is a suitable site for the extension of the European town.

Three hills are occupied by mission stations. Namirembe hill is the C.M.S. head-quarters, with schools, training college for native teachers, and a magnificent hospital. A large cathedral, to hold 7,000 persons, is now being built at the cost of £50,000 to replace the old one burnt in 1910. Nsambya hill is the head-quarters of the R.C. Mill Hill Mission, with church and schools and large coffee plantations. Rubaga hill is the station of the White Fathers, with a large church holding 11,000, and schools. All these missions have many rural schools and chapels in the neighbourhood.

Institutions. Native hospital: 2 wards. Males 20 beds, females 6 beds. Isolation and quarantine hospitals. Bacteriological laboratory. Hospital for venereal diseases, on Mulago hill. This has been established with the active co-operation of the local chiefs, who take great interest in it. C.M.S. hospital on Namirembe hill, 140 beds. First-class, with operating theatre, X-ray installation, &c. Separate block for European patients. Operations average 1,200 a year. The best hospital in East Africa; patients come for treatment from all parts. A special study is made of tropical diseases. C.M.S. central school, 280 pupils. Mengo High School, 72 native pupils. Teachers' Training College, 19 native pupils. White Fathers' schools, 345 boys, 299 girls. Mill Hill Mission boys' school. European club. Motor club. Golf course. Government experimental station for economic plants especially coffee, cocoa, and rubber, and nursery for shade-trees for planting along roads.

Industries. Six ginneries, including the Uganda Cotton Co.'s ginnery in the lower town. Their removal outside the

township area is desirable, as raw cotton from plague-areas is a fruitful source of infection. Extensive brickfields in the Navikubu swamp. Small native silk industry. Government transport motor-works. Works of Uganda Engineering Co. Smithies, carpenters' shops. Motor repairs can be executed.

Trade. Market on Nakasero hill. Asiatic bazaar, stores. National Bank of India and Standard Bank of S. A. offices. Branch of the B.E.A. Corporation, agents for Lloyds, Union Castle Line, &c. A good deal of coffee and ginned cotton passes through Kampala en route for Port Bell.

General. Kampala is the best starting place for expeditions to the Belgian Congo, Lake Albert, and the White Nile. Porters and provisions can be had.

Kamule (Busoga).

Alt. 3,717 ft., 8 miles north-east of Mbulamuti. Pop. (1911) 2,619.

Road to Mbulamuti, 8 miles, motor, connecting with the railway at mile 42.

Description. Kamuli is a rising trade centre of north-east Busoga. The C.M.S. and Mill Hill Missions have stations there.

Kibanga Port (Kiangwe).

On an inlet of Lake Victoria, about midway between Jinja and Port Bell, and 152 miles from Kisumu.

Road joins the main Kampala-Bugungu road.

Steamer calls at request.

Description. This port has been opened to help coffee-planters in Kiangwe, but has not yet developed. There was no accommodation 1915-16 and little or no trade appears to be done at present.

Kitgum (Chua).

56 miles north-east of Gulu. P. O. (letters only).

Roads (all 18-20 ft. wide and fit for motor cycles.

To Gulu, 57 miles. (See Route 95, p. 321.)

To Masindi, 68 miles.

To Lira, 76 miles (46 to Paranga ferry). (See Route 98, p. 321.)

To Palabek for Nimule, 24 miles. Not kept up beyond this point, owing to fly.

Description. Kitgum was founded in 1912 and is the temporary administrative centre of Chua district. It has a prison, and a native hospital (huts). The river water is full of guinea-worm. The shallow wells should be used if possible.

Kumi (Teso).

About 35 miles NNW. of Mbale.

P. O. (letters only). Runner mail to Mbale, Iganga, Jinja, Kampala, and Entebbe. Meteorological station.

Roads (all metalled).

To Lake Salisbury, 8 miles. (See Route 83, p. 318.)

To Agu via Ngoro, 17 miles. (See Route 81, p. 317.)

To Mbale, 36 miles.

Bullock-transport to Mbale.

Description. Kumi was the old Government station of Teso district. It is the centre of a cotton area, and has two ginneries.

Lale (Teso).

On the east arm of Lake Kioga, 12 miles west of Soroti, of which it is the port.

Road to Soroti, 12 miles. Motor. (See Route 82, p. 317.)

Port. Large earth jetty.

Trade. Cotton. Exports 1915-16, 3,274 tons; imports 755 tons. Passengers, 4,018.

Lira (Lango).

At the source of the Koli near Ngetta hill and 25 miles north-east of Nabieso.

Roads.

To Kachung, 26 miles, metalled (in construction). (See Route 87, p. 318.)

To Kitgum, 71 miles (25 to Paranga ferry).

Description. Lira is the Government station for Lango district. The head-quarters for Kwania and Eruti counties was removed here in 1914 from Nabieso on the north shore of Lake Kwania, which had proved too unhealthy. It is

a trading centre, served by the port of Kachung on Lake Kwanja. There is a hospital in native huts, and a prison. Water is obtained from native water-holes.

Masaka (Buddu).

Alt. 4,250 ft. ; 24 miles west of Bukakata (Lake Victoria).

P. O. T. Temporary telephone to Bukakata. Runner mail to Entebbe and Mbarara. Meteorological station.

Roads.

To Bukakata, 24 miles. Motor. (See Route 28, p. 307.)

To Kampala, 83 miles. Light motors, cycles, and carts. (See Route 30, p. 308.)

To Mbarara, 90 miles. Light motors and carts except after heavy rain (See Route 29, p. 307.)

To Kiasimbi, 55 miles. Light motors, &c., in dry weather. (See Route 31, p. 308.)

To Koki, 36 miles. Light motors to Kyotera, carts and cycles beyond.

To Sango Bay, 66 miles. Light traffic. (See Route 33, p. 308.)

Description. Masaka was established in 1897 and declared a township in 1906. It has been carefully laid out, and is expected to have in future considerable commercial importance ; but so far has not come on very well. It is served by the port of Bukakata and lies on the main trade route to Ankole and the Ruanda. Masaka is the district head-quarters, and seat of a district commissioner, assistant district commissioner, and medical officer. The water-supply, from springs, is good.

Institutions. Police-station and prison. Native hospital ; 6 male and 3 female beds.

Trade. There is a fair bazaar, with about 100 Indian and Goanese traders. Three Kampala firms are represented by Goanese. Agency of the B.E.A. Corporation. There are numerous Indian shops scattered over the district.

Masindi (Bunyoro).

Alt. 3,764 ft. About 34 miles north-east of Hoima and 30 miles east of Lake Albert. Pop. (1911) 695.

P. O. T. Telephone. Runner mail to Hoima, Kampala, Entebbe, Nimule, and Gondokoro. Meteorological station.

Motor service (5 Government vans) to Masindi Port, and to Bukumi, 7 miles from Butiaba (Lake Albert).

Roads.

To Masindi Port, 29 miles. Motor. (See Route 88, p. 319.)

To Bukumi (Butiaba), 47 miles. Motor. (See Route 88, p. 319.)

To Hoima, 34½ miles. (See Route 89, p. 319.)

To Gulu via Atura, 83½ miles. (See Route 90, p. 319.)

To Nakasongola, 60 miles.

To Kafu Ferry, 36 miles.

Description. Masindi is the head-quarters of northern province and of Bunyoro, and seat of the native government of Bunyoro since 1912. The station, which is well placed on the upper slopes of a bay of hills covered with trees and verdure, was laid out in 1912, and began to develop in 1913. Buildings are increasing quickly, and European firms are taking up commercial and residential plots. Planters are coming into the neighbourhood, and capital has been spent in encouraging the cotton and silk industries. There is a well-kept hotel and also a wattle and daub rest house. Good water supply from a spring in the swamps.

Institutions. Native hospital: one ward with 8 beds. Dispensary. R.C. church and school, 138 boys and 59 girls. Prison. European club, tennis courts, and golf course.

Trade. British firms have started a successful agency and forwarding business with Belgian Congo. Branch of the B.E.A. Corporation. A few stores.

Masindi Port (Bunyoro).

At the exit of the Victoria Nile from the west end of Lake Kioga.

P. O. T.

Motor service to Masindi, and Bukumi (for Lake Albert) in about 3 hours. (See Route 88, p. 319.)

Road to Masindi, 29 miles. Motor.

Steamer to Namasagali for Busoga Railway, 106 miles in about 12 hours.

Port. An earthwork bank faced with piles and plank pier.

Description. Masindi Port is one of the most important stations on Lake Kioga, being on the direct line of communication with the Belgian Congo via Masindi and Lake Albert, and with the Uganda Railway via Namasagali and Lake Victoria. There is at present (1917) no accommodation. The B.E.A. Corporation have a ginnery here.

Trade. In 1916-17 the imports were 1,580 tons, and the exports mainly cotton and simsim 459 tons. 2,607 steamer passengers were dealt with.

Mbale (Bukedi).

South-west of Mount Elgon, and about 50 miles north of Mjanji (Lake Victoria). Pop. (1911) 924.

P. O. T. Telephone to Government offices. Runner mail to Iganga, Jinja, Kampala, Entebbe, and to Kumi and Nabieso. Meteorological station.

Motor service to Mjanji.

Roads.

To Mjanji, 62 miles. Motor. First class. (See Route 73, p. 315.)

To Jinja, 94 miles. Metalled in parts, but no longer fit for motors. Bullock carts. Mpolomogo river at mile 62 must be crossed by canoe. (See Route 70, p. 314.)

To Lukonge (10) and Lwakaka, 25½ miles. Cycles. (See Route 76, p. 316.)

To Butaleja, 19½ miles. Carts and light motors in dry weather only. Hilly and swampy. (See Route 75, p. 316.)

To Palissa, 33½ miles. Hilly and swampy. (See Route 74, p. 316.)

Description. Mbale is the head-quarters of Bukedi and seat of the district commissioner, who removed here from Budaka in 1904. The township was surveyed in 1908, and building began in 1909. It is situated on a long narrow ridge with a swamp and rivulet below it on each side and is sheltered by high hills from the prevailing winds, which makes

the climate stuffy and trying. The houses are badly placed, too many of them being on the slopes, and within reach of the mosquitoes from the swamps, which badly need draining. There is a crowded Indian bazaar, mostly unfit for habitation, and far too near the European quarter.

Institutions. Native hospital: one ward with 8 beds, and temporary camp. Isolation and quarantine buildings. C.M.S. boys' high school and agricultural college for sons of chiefs at Mvule. About 70 pupils. Prison.

Trade and Industry. Mbale was originally a clearing house for ivory from Karamoja and Abyssinia. This trade is dead though a certain amount of poached Abyssinian ivory still comes in by this route. Mbale, however, has become one of the principal collecting and distributing centres for cotton and other native produce. There are many Indian, Arab, and Somali traders; and the shops outside the town have increased from 33 in 1909 to 140 in 1917. Rat-proof cotton stores well away from the dwelling houses are much needed and would reduce the risk of plague infection.

Mbarara (Ankole).

Alt. 4,500 ft. On the river Ruizi, about 45 miles south-east of Lake George. Pop. (1911) 2,264.

P. O. T. Telephone. Runner mail to Masaka and Entebbe. Meteorological station.

Roads.

To Masaka, 90 miles. Light carts and cycles in dry weather.

To Koki, 50 miles. Light carts and cycles in dry weather.

(See Route 60, p. 313.)

To Mubendi, 90 miles.

To Fort Portal, 95 miles.

To Kabale, 90 miles. Cycles.

To Katwe, 85 miles. (See Route 63, p. 313.)

Description. The township consists of a circle within a radius of one mile from the district commissioner's office. The European quarter is on the crest of a hill on the right bank of the Ruizi, and is surrounded by a wide expanse of undulating pasture land. There is a considerable and

increasing population, and a good deal of cultivation in the district. Small Indian bazaar. Mbarara is the capital of Ankole and residence of the king (Mugabe) and prime minister (Katikiro). The principal chiefs have houses here. They are very advanced and Europeanized and mostly have their own motors, &c. The water supply during the rains is ample and good, but in the dry season must be obtained from tanks or the river, which is discoloured.

Institutions. Native hospital: one ward, 7 beds. C.M.S. high school for sons and daughters of chiefs, about 70 boys and girls. R.C. Mission (White Fathers) and school, 145 boys and 104 girls. Prison.

Mbulamuti (Busoga).

8 miles west of Kamule. P. O. (letters only).

Road to Kamule, 8 miles. Motor. (See Route 72, p. 315.)

Description. A station on the Busoga Railway, 43 miles from Jinja serving Kamule and centre of a cotton district. There is a concrete station and station master's house and a goods shed.

Trade. In 1915-16 the exports were 2,447 tons and imports 1,060 tons. There were 7,066 passengers.

Mjanji (Busoga).

At the entrance of Sio river into Lake Victoria, close to the B.E.A. frontier. P. O. (letters only).

Motor service to Mbale. (See Route 73, p. 315.)

Road to Mbale, 62 miles. Metalled, first class.

Steamer to Kisumu, 94 miles, weekly. No regular connexion with Jinja.

Port. In 1914 a pier 252 ft. long, with a T-piece 132 ft. by 50 ft. capable of taking a shed 111 ft. by 30 ft. was projected: but it had not been begun in 1916. There is a customs house.

Description. Mjanji is probably destined to be an important trade centre. The fact that it lies in the old sleeping-sickness area has hindered its development, but it already serves as an outlet for much produce. In 1915-16 its exports were 620 tons mostly cotton, and imports 229 tons.

Mubendi (Buganda).

Alt. 5,121 ft., 96 miles west of Kampala. Pop. (1911) 140.
P. O. (letters only). T. Telephone. Runner mail to Entebbe and Fort Portal. Meteorological station.

Roads.

To Kampala, 98 miles. Motor in dry weather. (See Route 38, p. 309.)

To Fort Portal, 98 miles. Motor in dry weather.

To Hoima, 76 miles. Cycles. (See Route 34, p. 308.)

To Mbarara, 123 miles. Cycles. (See Route 35, p. 308.)

To Masaka, 101 miles. Cycles. (See Route 36, p. 309.)

To Kagadi (junction of Fort Portal and Hoima roads), 71 miles.

The continuation to Lake Albert is closed on account of sleeping-sickness.

Description. Mubendi is a district head-quarters, built in 1907 when the Government station was removed here from Kakamero. It lies on a long narrow ridge of short grass, on the high road between Kampala and Fort Portal. There is a prison, and a small Indian bazaar.

Nagongera (Bukedi).

25 miles south-west of Mbale.

Road to Mbale.

Description. An important trade centre with a fluctuating population. R.C. Mission (Mill Hill) and school with 395 boys and 53 girls. Plague-area.

Namasagali.

On the right bank of the Victoria Nile, 61 miles below Jinja. P. O. T. Telephone (4 extensions).

Railway to Jinja, 61 miles. Railhead of the Busoga Railway. Trains draw up alongside the steamers.

Steamers of the Busoga Railway Marine run to ports on Lake Kioga and Masindi Port weekly; and steamers and lighters to Bugondo (10 hours) and down the Nile to Atura.

Port. A pier 500 ft. long was being built in 1916 but has been much delayed by the war. The abnormal rise in the level of the Nile in 1916-17 has involved a raising of the level

of the wharf. There is a concrete slipway with marine workshops, engineers' houses, and offices, and a goods shed 210 by 30 ft. The superintendent of the Busoga Railway Marine with his staff reside at Namasagali. The water-supply, from the river, is slightly saline.

There is a hospital with 2 Asiatic wards (2 beds) and one native ward (6 beds).

Trade. Exports (1915-16) 227 tons, imports 393 tons. Goods in transit to and from other lake-ports not included. Passengers 4,832.

Ngora (Teso).

On Lake Nyogua, an arm of Kioga, about 20 miles south-east of Soroti.

Road to Palisa, 25 miles.

Port. This has now been moved to Agu, about 4 miles to the west. The canoe traffic between Ngora and Agu is said to be entirely controlled by the fathers of the Mill Hill mission.

Ferry to Agule.

Description. Ngora is an important cotton centre, with a ginnery. The C.M.S. have an agricultural college here, where boys give their labour in part-payment for their education. Ploughing, forging, &c., are taught. There is a boarding school for the sons of chiefs. The R.C. Mill Hill mission has a school for 195 boys and 28 girls.

Palisa (Bukedi).

• 34 miles WNW. of Mbale.

Roads.

To Ngora, 25 miles.

To Mbale, 33½ miles. (See Route 74, p. 316.)

Metalled road to Gogonya under construction. (See Route 80, p. 317.)

Description. Important trade centre for native produce, sim-sim, &c. Plague area.

Port Bell or Luzira (Mengo).

At the head of Murchison Bay, 7 miles from Kampala.

Railway to Kampala.

Motor service to Kampala.

Roads.

To Kampala, 7 miles. Motor.

To Mukono.

Steamers. Regular weekly service to and from Kisumu. Port of call on round-trips round the lake. To Kisumu, 176 miles.

Port. Port Bell is the harbour for Kampala. It has a pier 265 ft. long, berthing two steamers, and three goods sheds respectively 132 by 20, 100 by 25, and 100 by 40 ft. There is a fixed crane with a hoisting capacity of 2 tons. Custom house. Sixth-order dioptric light.

Trade. The principal exports are cotton, cotton-seed, hides; and coffee. In 1915-16 exports were 4,508 tons and imports 3,118 tons. Passengers dealt with, 13,201.

Sangai (Lango).

On the north-east of Lake Kioga.

Road to Kilaki about 5 miles (good).

Description. Sangai is a new port, intended to serve the neighbouring trade centre of Kalaki. In 1915-16 its exports were 457 tons and imports 103 tons.

Soroti (Teso).

30 miles north-west of Kumi.

Road to Lalle, 12 miles. Motor. (See Route 82, p. 317.)

Description. Soroti is the seat of the government headquarters for Teso district, which were removed here from Kumi in 1913. It is an important cotton centre, exporting large quantities via Lalli, with which it is connected by motor-lorries with trailers. There are two ginneries. The water-supply, from a spring in the swamps, is good.

Institutions. Native hospital, one Asiatic with 2 and one native ward with 6 beds. Two isolation huts, 8 beds. Prison. R.C. mission (Mill Hill) and school for 90 boys.

CHAPTER XII

COMMUNICATIONS

External—Railways—Waterways—Roads and Tracks—Posts and Telegraphs—Itineraries.

EXTERNAL

There are two ordinary routes by which the Protectorate can be reached from Europe :

(a) By sea, via the Suez Canal or Cape to Mombasa, and thence by rail and steamer service on Lake Victoria, and

(b) Through Egypt and the Sudan via the Nile.

Route (a) is generally used and the journey can be made in comparative comfort from Mombasa to Kisumu on Lake Victoria, 584 miles. From Kisumu, the head-quarters of the Uganda Railway Marine, steamers run to the principal lake ports, both direct to Entebbe and also round the lake.

The through mail train leaves Mombasa on Thursdays at noon and arrives at Kisumu the following Saturday morning in time to connect with the steamer which sails at 10 a.m. for Entebbe, arriving there about noon on Sunday, 175 miles.

Route (b) is not in general use but provides an interesting alternative. The Sudan Government steamers sail from Khartoum to Rejaf on the 6th and 21st of each month, 12 days. Shortly below Rejaf navigation stops on account of shallows and rapids, and the journey to Nimule, where the river again becomes navigable, must be made by porters. The distance is 98 miles, and takes from nine to ten days. The Sudan Government provides rest camps along the route where fuel and water can be obtained, together with a certain amount of produce. The camps are in charge of caretakers and are

clean and well kept. A limited amount of stores can be purchased at Rejaf, but it is advisable to take provisions from Khartoum. A chague (canvas water bag) should be carried for drinking purposes.

The following itinerary gives the Government camps, with approximate marching time :

	<i>Hours.</i>
1. Rejaf to Shoka	3 $\frac{1}{4}$
2. Shoka to Leju	4 $\frac{1}{2}$
3. Leju to Gadein Morbi	4 $\frac{1}{2}$
4. Gadein Morbi to Tombi Musa	2 $\frac{3}{4}$
5. Tombi Musa to Uma	4 $\frac{1}{2}$
6. Uma to Muku	3 $\frac{1}{2}$
7. Muku to Murjau	2 $\frac{1}{2}$
8. Murjau to Tombi Boru	2
9. Tombi Boru to Opari	2 $\frac{1}{2}$
10. Opari to Mondi	3 $\frac{1}{4}$
11. Mondi to Aju	1 $\frac{3}{4}$
12. Aju to Assua	2
13. Assua to Nimule	3 $\frac{1}{2}$

A charge of P.T. 70 is made for the use of these camps.

If tents are taken camps can be fixed as desired, as there is passable water practically every two hours.

Porters for the journey can be arranged with the inspector at Rejaf, or the mamur at Nimule, and are charged for at the following rates :

Headman, P.T. 3 per diem, and food.

Porters, P.T. 2 per diem, and food.

The recognized ration is 1 $\frac{1}{2}$ lb. flour daily. Half the above rates and food must be paid for the return journey. To avoid delay food should be ordered in advance through the officers concerned at the time the requisition for porters is forwarded.

The Lake Albert marine steamer *Samuel Baker* sails from Nimule to Butiaba on Lake Albert on the 8th and 23rd of each month.

Catering on the Sudan Government steamers is usually by arrangement with the steamer officers, but it is advisable to arrange this beforehand. Passengers on the Lake Albert steamer can join the officers' mess at a charge of Rs. 6 per diem.

There is no accommodation at Butiaba, and arrangements for transport to Masindi and thence to Masindi Port should be made in advance from Rejaf. This can be done either through the Uganda Transport Officer at Masindi, or through one of the local transport firms there.

RAILWAYS

The Busoga Railway connects the waterways of Lake Victoria with those of the Victoria Nile, including Lakes Kioga and Kwanja.

It is 61 miles long from Jinja (Ripon Falls) to Namasagali, where the river broadens out into Lake Kioga, with its extension Kwanja, and was opened for traffic in 1912. Connection beyond Namasagali is made by steamers of the Busoga Marine Service. Both the railway and marine are under the direct administration of the general manager, Uganda Railway.

The Kampala Railway is a short line of 7 miles, which connects Kampala with Port Bell, or Luzira, on Lake Victoria, and was opened for traffic in 1917. It is the first section of the projected line which has been surveyed from Kampala to Tonia on the south-east arm of Lake Albert, the construction of which has been authorized, but has been delayed in consequence of the war. It is also administered by the Uganda Railway.

WATERWAYS

Lakes Victoria, Kioga, and Albert, are navigable over the greater part of their area.

Lake Victoria is served by steamers of the Uganda Railway Marine. There is a direct weekly mail and passenger service from Kisumu, the marine head-quarters, to Entebbe, Port

Bell, and Jinja, with intermediate services to these and other Uganda ports and to the ports in Tanganyika Territory.

Lake Kioga, with its extension Kwania, is served by steamers of the Busoga Railway Marine. There is a direct weekly service between Namasagali (railhead) and Masindi Port, with intermediate services to the many small ports on Kioga and Kwania. These are, however, subject to interruption owing to the masses of sudd—chiefly large blocks of papyrus—which break loose from time to time. The Victoria Nile, between Jinja and Namasagali, is unnavigable in consequence of rapids. Beyond the junction of the Kafu River with Kioga, however, where the river narrows again into its ordinary channel, the Nile is navigable for 62 miles to Foweira, which is served by a fortnightly steamer service. Fifty miles of rapids, rocks, and gorges, culminating in the Murchison Falls, render its course unnavigable from Foweira to Fajao. From Fajao it becomes again navigable for the remaining 16 miles of its journey to the Albert Lake.

Lake Albert is served by the Albert Marine Transport. There is a weekly service with Kasenji and Mahagi on the Belgian Congo side and a fortnightly service with Nimule in connexion with the Sudan Government steamers. The Nile proper—a continuation of the Victoria Nile—is navigable from where it leaves Lake Albert to Nimule, 125 miles. From Nimule to Fort Berkeley, below Rejaf, its course is intersected by rapids, and the journey between Nimule and Rejaf has to be made by porters. The Albert Marine Service is a department of the Uganda Government and is not administered by the Uganda Railway.

ROADS AND TRACKS

The general system of internal communications may be roughly divided into (1) those forming direct routes to the Belgian Congo, and (2) administrative roads for the connexion and development of administrative and trade areas.

(1). There are two well-defined routes to the Belgian Congo, viz. :

- (a) From Jinja on Lake Victoria by the Busoga Railway to Namasagali, thence by steamer to Masindi Port, thence by the motor road via Masindi to Butiaba on Lake Albert, and thence by steamer to Kasenji, the port for the Kilo mines, or to Mahagi. This is also the main route to the Sudan, via Butiaba and Nimule.
- (b) From Kampala by the motor road to Fort Portal, via Mityana and Mubendi, and well-defined carrier track from Fort Portal to the Semliki River, the international boundary. Thence by the Belgian Congo road to Irumu, via Ngiti.

Route (a) is chiefly used for the transport of heavy loads. Transshipment and breakage of bulk for road transport beyond Masindi are the chief difficulties, as the Uganda Railway will not book farther west than Masindi Port. There are also possible delays to be faced by the breaking loose of sudd on Lake Kioga, which occasionally blocks the channels, when steamers are held up indefinitely until the channels can be cleared or new passages found.

Route (b) is more in general use, as carrier loads are made up at Kampala and sent on either by Government motor van to Matiri (161 miles), where the metalled road ends, and from there to Fort Portal (43 miles) by ox wagon or hamali cart transport, or by carriers the whole way to Fort Portal, where fresh transport is arranged to the Semliki River and beyond (30 miles). The main difficulty is the closing of the road from time to time on the Belgian side by the Congo local district authorities, as the Congo Government are particularly anxious to develop route (a) for administrative reasons and discourage route (b) whenever possible. In spite of this many thousands of carrier loads cross the Semliki from Uganda every year en route for the Kilo gold-mines and other eastern trade centres of the Belgian Congo.

There is a third route, which with a small extension could be made to tap that part of the Belgian Congo between

Lakes Edward and Kivu, and is in fact now in use for that purpose, viz. :

(c) From Bukakata on Lake Victoria by motor road to Masaka, thence by wagon road to Mbarara, and on by wagon road to Kabale in the Kigezi district. Beyond Kigezi there is a well-defined carrier track to Rukhuru in the Congo. This route also taps Ruanda and Urundi now Belgian mandated territory, from whence there is a considerable trade in hides, via Lutobo.

2. There is a large network of roads throughout the Protectorate, which link up the various administrative and trade centres, so that, excepting the Rudolf Province, it is possible to travel almost to any part by light motor car or cycle. These vary from hard metalled roads for heavy motor transport to cleared hardened earth tracks, and may be classed as follows :

- I. Motor roads, metalled throughout for heavy transport, constructed and maintained by the Public Works Department as a charge against Protectorate funds.
- II. Gravelled roads for light motor, wagon, or cart traffic, constructed and maintained by the Public Works Department as a charge against Protectorate funds.
- III. Earth roads, suitable for light motor and wagon or cart traffic in dry weather, constructed by the Public Works Department, who keep all culverts and bridges under repair, the maintenance and upkeep being provided by the provincial native governments and councils concerned.
- IV. Light connecting earth roads possible for wagon and motor cycle traffic in dry weather, constructed and maintained by the provincial native governments and Councils concerned under the supervision of the District Commissioner.

There are 573 miles of main roads suitable for heavy traffic in addition to upwards of 100 miles under construction in the eastern province. There are also over 2,000 miles of smaller roads for light traffic.

The main (Class I above) roads may be divided into three sections :

- (a) Those connecting with the steamer service on Lake Victoria, viz. :

	<i>Miles.</i>
Kampala to Entebbe Pier	25
Kampala to Fort Portal, 202 miles, installed to Matin	161
Kampala to Nakasongola, open for	56
Kampala to Jinja, metalled to mile 31, and from mile 46-54	39
Port Bell to the Kampala-Jinja road junction	3
Bukakata to Masaka	24
Jinja to Iganga	34
Mjanji (Sio river) to Mbale	62

- (b) Those connecting with the Busoga Railway, viz. :

	<i>Miles.</i>
Mbulamuti to Kamule	8
Luzinga to Kaliro	26

- (c) Those connecting with the steamer services on Lakes Kioga and Albert, viz. :

	<i>Miles.</i>
Masindi Port to Butiaba (last 7 miles under con- struction)	76
Agu to Lake Salisbury, via Kumi	25
Bugondo to Serere	14
Lale to Soroti	11
Sargai to Kalaki	9

Mechanical transport was first introduced into the Protectorate in 1908 and has been developed as far as financial conditions allowed in order to save human portage. The Government Transport Department now has a section of 20 motor vans and other vehicles, with head-quarters at Kampala, where a large garage has been erected,

There is a daily motor service for passengers and goods between Kampala and Entebbe, Sundays excepted, and a bi-weekly service between Kampala and mile 161 on the Toro road, which is much patronized by travellers to the Congo. There is also a weekly service between Masindi Port and Masindi, beyond which the van runs by arrangement to near Bukumi, on the Lake Albert Escarpment, pending completion of the metalled road. Intermediate services are also run between Kampala and Bombo and Jinja and Iganga. Privately owned vans and cars can be arranged with several of the transport firms at Kampala and Jinja. There are Government repairing shops at Kampala and Masindi.

For the other road connexions vide District Itineraries.

POSTS AND TELEGRAPHS

Post offices, sub-post offices, and postal agencies are to be found at practically all district stations and trade centres throughout the Protectorate. Telegraph, as well as postal, business, is dealt with at the following places: Bugondo, Entebbe, Fort Portal, Hoima, Iganga, Jinja, Kakindu, Kampala, Kabale, Luzira (Port Bell), Masaka, Masindi, Mbale (Elgon), and Mubendi. Overland connexion with the Sudan is made by telegraph to Wadelai and telephone to Nimule. Messages from Nimule are sent by runner to Rejaf. Telegrams for Butiaba are telephoned from Masindi.

Overseas cables can be dispatched from any post office, via Mombasa. Uganda telegraphs are connected with the British East Africa via Mbale and Mumias. There are telephone exchanges for the use of the public at Kampala and Entebbe. Telephone conversations are also allowed between telegraph offices and Government stations, most of which are connected up.

There is a weekly mail service between Uganda and British East Africa, with occasional intermediate services. Mails for the Belgian Congo are dispatched via Masindi, with an intermediate service via Fort Portal as occasion requires.

Overseas mails are irregular, depending on the steamer service to Mombasa, but there is a special fortnightly letter service for Europe via the Sudan and Egypt.

ITINERARIES

BUGANDA PROVINCE

Mengo District

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
Kampala to :			
1.	Entebbe	25	Good motor road.
2.	Port Bell	7	"
3.	Jinja	54	Good motor road to mile 31, earth road to mile 46, motor road for remainder.
4.	Nabukazi (Mubendi Road)	75	Good motor road.
5.	Bombo	22	"
6.	Gayaza	12	"
7.	Mbale (Masaka Road)	18	Light motor & wagon road.
8.	Kitosi via Mbale	50	"
9.	Budo	8½	"
10.	Kafu River (Hoima Road)	110	Motor cycle and cart road.
11.	Kafu River via Mitiana	118	"
12.	Kisosi (Gomba)	75	"
Bombo to :			
13.	Boa	9	Motor and wagon traffic.
14.	Nakasongola (Buruli)	51	"
Mile 4. Kampala-Port Bell Road to :			
15.	Mukono	12	"
Mukono to :			
16.	Mubango, Kiwala, Naga lama	46	"
17.	Kyetume, Mpumu, Kibanga Port	17	Motor cycle and cart traffic.

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
18.	Ngogwe (Kilagwe)	18	Motor cycle & cart traffic.
19.	Nagalama (Kilagwe)	22	"
20.	Bukoba (Kilagwe)	30	"
21.	Kalule (Bulemezi)	33	"
22.	Bugonja Ferry (Bugerere)	42	"

Mubango to :

23.	Jinja	14	Motor and wagon traffic.
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Nakasongola (Buruli) to :

24.	Kafu River	34	Motor cycle & cart traffic.
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Mpumu (Kilagwe) to :

25.	Bwavu on Jinja Road, via Bukassa Ziba	24	"
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Luwero (Bulemezi) to :

26.	Boa via Kikamulo, Lukya- mu, Lukumbi, Busowa, Balatila, Bukatira and Kalasa	66	"
	Junda (Buruli)	53	"

Kalagala Wabunaza to :

27.	Junda	15	"
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The Masaka District

28.	Masaka-Bukakata	24	Motor and wagon road.
	Masaka to Sunga	11½	There is a rest camp at
	Sunga to Bukakata	12½	Sunga. Food scarce.
29.	Masaka-Mbarara	90	For light motor and wagon
	Masaka to Kaboyo	14	traffic only. There are
	Kaboyo to Kjazanga	16½	rest camps along the
	Kjazanga to Lyantonde	18	route. Food and water
	Lyantonde to Kianja	14½	are scarce in the dry
	Kianja to Kanalyeru	12	season from Kaboyo to
	Kanalyeru to Mbarara	15	Mbarara.

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
30.	Masaka-Kampala	83	For light traffic only. There
	Masaka to Mukoko	15	is a rest camp at Mukoko.
	Mukoko to Buganga	13	Beyond Buganga the road
			is in the Entebbe district.
			Food and water plentiful.
			For route to Entebbe,
			vide Entebbe district.
31.	Masaka-Kiasimbi	55	For light traffic only. Kia-
	Masaka to Kabwoko	12	simbi is on the boundary
	Kabwoko to Kyotera	15	between Uganda and
	Kyotera to Sanji	13	Tanganyika Territory.
	Sanji to Kiasimbi	15	Food and water obtain-
			able at camps.
32.	Masaka-Rakai	39	Rough track only beyond
	Masaka to Kyotera	27	Kyotera. Food and water
	Kyotera to Rakai	12	obtainable at camps.
33.	Masaka-Sango Bay	66	For light traffic only. Food
	Masaka to Sanji	40	scarce. Sango Bay is the
	Sanji to Nazareth	19	port for shipment of tim-
	Nazareth to Sango Bay	7	ber from the Tero forest.

The Mubendi District

34.	Mubendi-Hoima	76	Native earth road. Fit for
	Mubendi to Kiganwa	13	cycle and country carts
	Kiganwa to Kakumiro	9	only. There are rough
	Kakumiro to Nkondo	10	camps throughout. Food
	Nkondo to Kitaiuka	9	and water plentiful. The
	Kitaiuka to Nalwezo	10	Kafu river is the district
	Nalwezo to the Kafu river	7	boundary.
	Kafu river to Hoima	18	
35.	Mubendi-Mbarara	123	Native earth road to the
	Mubendi to Kibalinga	12½	Katonga river, the dis-
	Kibalinga to Kabokasa	14	trict boundary. From

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
	Kabokasa to the Katonga river	9½	there a cross-country track only. Food and water available.
	Katonga river to Mbarara	87	
36.	Mubendi-Masaka	101	Native earth road to the Katonga river via Kibalinga and Kabokasa as above. Thence by cross-country track to Masaka, 65 miles. Food and water available.
37.	Singo-Kakumiro-Lake Albert	96	Native earth roads and cross-country tracks only. Food and water obtainable. The route from Kagadi to Tonia, on Lake Albert, is temporarily closed on account of sleeping-sickness. Tonia is the proposed terminus of the Kampala-Lake Albert Railway.
	Singo boundary (at Kana-lago river) to Bukumi	15½	
	Bukumi to Kakumiro	4½	
	Kakumiro to Busesa	16	
	Busesa to Kibale	8	
	Kibale to Kichunda	12	
	Kichunda to Kagadi	15	
	Kagadi to Tonia	25	
38.	Mubendi-Kampala	98	Part of the Mubendi-Fort Portal main road. Motor and wagon transport.

The Entebbe District

39.	Entebbe-Kampala	25	Good motor & wagon road.
40.	Entebbe-Masaka	76½	Motor and wagon road for light traffic only. Difficult in wet season owing to swampy crossings. Food and water obtainable.
	Entebbe to Mbale	22½	
	Mbale to Kamengo	10	
	Kamengo to Buama	10	
	Buama to Buganga	11	
	Buganga to Masaka boundary	5	
	Boundary to Masaka	28	

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
41.	Kampala to the Hoima Road	31	Light motor and cart road.
	Busiro boundary to Wakiso	7 $\frac{1}{4}$	Difficult in wet season.
	Wakiso to Kakiri	7 $\frac{3}{4}$	Food and water obtainable.
	Kakiri to Namayumba	12	
	Namayumba to district boundary	4	
42.	Entebbe-Bweya-Mbale-Kabasanda-Gomba	32	District cart track, passable for rickshaws and cycles. Canoe ferry at Nakiwogo. Food and water obtainable.
43.	Busi-Kasanja-Nsagu-Kampala-Masaka road	21	District cart track, passable for rickshaws and cycles. Canoe ferry at Mabamba. Food and water obtainable.
44.	Entebbe-Kasuku-Mukono-Kapeka-Kiziba-Danze	43	District cart track. Food and water plentiful.
45.	Gobera (Hoima road)-Kiziba	5	„
46.	Butoro-Kabasanda	12	District cart track. Passable for rickshaws and cycles. Food and water obtainable.
47.	Masaka Road-Butoro-Kyatwa	6	„
48.	Katende-Kiringente-Bujoko (Toro Road)	7$\frac{1}{2}$	„
49.	Mpigi-Mudama	8	„
50.	Mitala Maria-Butambala	9	„
51.	Masaka Road-Nkosi-Kitungu-Butambala	13	„
52.	Kabasanda-Kibibi-Gombe-Bulo-Gomba	27	„
53.	Kibibi-Kyandaza	9	„

THE WESTERN PROVINCE

Toro District

<i>No.</i>	<i>Roads.</i>	<i>Mileage and time.</i>	<i>Condition.</i>
54.	Fort Portal-Kampala	202·33 miles	From Fort Portal to
	Fort Portal to Muhumbu	6·6 „	Matiri the road is
	Muhumbu to Kahangi	6 „	unmetalled and is
	Kahangi to Kagorugoru	6 „	suitable for cart
	Kagorugoru to Butiti	7 „	transport only.
	Butiti to Kyenjojo	9·8 „	There is a good
	Kyenjojo to Matiri (road head)	5·93 „	motor road from
	Road head to Kampala	161 „	Matiri to Kampala
			served by the Gov-
			ernment Trans-
			port Department.
			There are porters'
			camps throughout
			where food and
			water can be ob-
			tained. The Fort
			Portal-Matiri sec-
			tion is under con-
			struction.
55.	Fort Portal-Hoima	100 (approx.)	Rough district track
	Fort Portal to Muhumbu	6·40 miles	only. Food and
	Muhumbu to Kyabalanga	3 hours	water obtainable.
	Kyabalanga to Butara	3 „	From the Nkussi
	Butara to Kagoro	2½ „	river ferry the road
	Kagoro to Muzizi	2 „	to Hoima is 36¼
			miles. Food and
			water obtainable.
56.	Fort Portal-Mbarara via	105 miles	Rough district track
	Ibanda		only. Food and
	Fort Portal to Isunga	13 „	water obtainable.
	Isunga to Kibale	10 „	From Kyaratanga
	Kibale to Murukunyu	10 „	the district boun-

<i>No.</i>	<i>Roads.</i>	<i>Mileage and time.</i>	<i>Condition.</i>
	Murukunyu to Mpanga River camp	12 miles	dary to Mbarara is 41 miles approx.
	Mpanga river camp to Kanyambarara	12 „	
	Kanyambarara to Kyara- tanga	7 „	
57. Fort Portal-Mbarara and Kasinde via Katunguru		110 miles	Rough track only, skirting the E. side of Ruwenzori. Ka- sindi is the Congo customs port of en- try for the country north and west of Lake Edward. The Katwe salt lakes are also reached by this route. Food and water obtain- able.
	Fort Portal to Rubona	12 „	
	Rubona to Kigarama	12 „	
	Kigarama to Hima river	9 „	
	Hima river to Kasese	8 „	
	Kasese to Muhokya	9.5 „	
	Muhokya to Kikorongo	6.5 „	
	Kikorongo to Katunguru Ferry	12 „	
	Katunguru Ferry to Ka- gando	8 „	
	Kagando to Bukangara	11 „	
	Bukangara to Kasinde	12 „	
58. Fort Portal-Semliki river. 30 miles (approx.)			
	Fort Portal to Busaiga	2 hours	Rough carrier track only. Food scarce.
	Busaiga to Wasa	1 $\frac{3}{4}$ „	
	Wasa to Itoga	3 „	This route is the connecting link be- tween the Kam- pala-Fort Portal road and the Bel- gian Congo. Tsetse fly area.
	Itoga to Semliki river	3 „	

The Ankole District

59. Mbarara-Masaka	90 miles	Vide Masaka to Mba- rara. 42 miles in Ankole district.
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<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
60.	Mbarara-Koki	50	Cross-country track. Food and water obtainable.
61.	Mbarara-Mubendi	123	Vide Mubendi to Mbarara. 87 miles Ankole district.
62.	Mbarara-Fort Portal	105	Vide Fort Portal to Mbarara. 41 miles in Ankole district.
63.	Mbarara-Katwe	85	Cross-country track only to the Katwe Lake salt deposits. Food and water obtainable. 70 miles in the Ankole district.
64.	Mbarara-Kabale	76	Rough cart road connecting Kigezi district with the Masaka-Mbarara road. Food and water obtainable. 54 miles in the Ankole district.

The Kigezi District

65.	Kabale-Lutobo	5 hours	Rough cart road. Camp at Lutobo. Hilly. Part of through Kabale-Mbarara road. Food and water at Lutobo.
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<i>No.</i>	<i>Roads.</i>	<i>Time.</i>	<i>Condition.</i>
66.	Kabale-Bufundi Via Lake Bunyoni	1½ hours	Rough cart road. Camp at Bufundi. Swamp crossed by camels. Connects Kabale with Ru- anda.
67.	Kabale-Rusumburu Kabale to Mpalo Mpalo to Nalusanje Nalusanje to Makoboles	2½ „ 5½ „ 5½ „	Rough cart road. Hilly. There are camps at each stop- ping place, a track leads from Maka- bole's (Rusumburu) to Chinchizi. Food and water obtain- able.
68.	Nalusanje-Kagamba	5½ „	Rough cart road. Hilly. Camp at Kagamba where food and water obtainable.
69.	Nalusanje-Kumba	4½ „	Mountain track. Camp at Kumba where food and water obtainable.

THE EASTERN PROVINCE

Busoga District

70	Jinja-Mbale	94 miles	Good motor road to Iganga, and two miles beyond (30 miles). Wagon road from thence to Mbale, which can be used for light
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<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
			motors in dry weather. The Mpologoma swamp is crossed at the ferry. Beyond the Mpologoma the road is in the Bukedi district.
71.	Luzinga-Kaliro	26	Good motor road, which connects the important cotton-growing centre of Naigobya and Kaliro with the Busoga Railway at mile 26.
72.	Mbulamuti-Kamule	8	Good motor road connecting the important trade centre of Kamule with mile 42, Busoga Railway.
73.	Mjanji-Mbale	62	Good motor road
	Mbale to Busiu	11	connecting Mbale,
	Busiu to Magode's	6	the head-quarters
	Magode's to Tororo	12	of the Bukedi
	Tororo to Busia	16	district, with Lake
	Busia to Mjanji	17	Victoria at Mjanji. The Mjanji-Malaba bridge section only is in this district (25 miles). The remainder is in the Bukedi district. Food and water obtainable at camps.

The Bukedi District

<i>No.</i>	<i>Roads.</i>	<i>Mileage and Time.</i>	<i>Condition.</i>
74.	Mbale-Palisa	33.7 miles	Earth road suitable
	Mbale to Iki Iki	12.7 „	for cart traffic.
	Iki Iki to Bulangira	8 „	Camps at each place
	Bulangira to Puti Puti	6 „	where food and
	Puti Puti to Palisa	7 „	water obtainable.
			From Palisa to Kasodo-Saka ferry is 6 miles.
75.	Mbale-Bunyuli	28.2 „	Earth road suitable
	Mbale to Mazimasa	11.2 „	for cart traffic.
	Mazimasa to Butaleja	8.3 „	Camps at each place
	Butaleja to Kainja's	8.7 „	where food and
			water obtainable.
			From Kainja's to Busoga ferry is 3 miles.
76.	Mbale-Lwakaka	25.5 „	Earth road suitable
	Mbale to Lukonge	10 „	for cart traffic.
	Lukonge to Butiru	9 „	Camps at each place
	Butiru to Lwakaka	6.5 „	where food and
			water obtainable.
			Lwakaka is on the East Africa Protectorate Frontier.
77.	Mbale-Kilimi		Trade route to Rudolf
	Mbale to Siroko	5 hours	and Abyssinia.
	Siroko to Bulegenyi	2½ „	Cross-country track
	Bulegenyi to Sipi (Tracy Falls)	2½ „	only. Hilly. Camps at place named
	Sipi to Sebei	3 „	where food and
	Sebei to Chui river	2½ „	water obtainable.
	Chui river to Kilimi	7 „	For continuation of route to Tshudi
			Tshudi see Rudolf Province.

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
78.	Mbale-Mjanji	62	Vide Mjanji-Mbale, 37 miles in the Bukedi district.
79.	Mbale-Jinja	94	Vide Jinja-Mbale, 52 miles in the Bukedi district.
80.	Palisa-Gogonya	13	Good metalled road for motor and wagon traffic. Palisa is an important centre for cotton production. Gogonya, on an arm of Lake Kioga, is a port of call for the Busoga marine service, and serves as an outlet for produce from Palisa county and the adjacent parts of the Teso district.

The Teso District

81.	Kumi-Ngora-Agu	17	Metalled road for heavy traffic connecting the cotton areas named. The channel between Salisbury and Kioga is un-navigable beyond Agu owing to rapids. Vide Kumi to Lake Salisbury, below.
82.	Soroti-Lale	11	Metalled road for heavy traffic connecting the

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
			cotton areas around Soroti with Lale Port on Lake Kioga.
83.	Kumi-Lake Salisbury	8	Metalled road for heavy traffic connecting the Kumi-Agu section with the cotton production areas of Lake Salisbury.
84.	Serere-Bugondo	15	Metalled road for heavy traffic connecting the cotton areas around Serere with Bugondo Port, an important trade and ginnery centre on Lake Kioga.

The Lango District

85.	Sangai-Pilitok	15	Metalled road to Kalaki, 9 miles, to be continued to Pilitok, connecting the cotton-producing areas with Sangai, port of call on Lake Kioga.
86.	Kelle-Kabiramaido	8 $\frac{3}{4}$	Metalled road, under construction, connecting the important cotton and trade area round Kabiramaido with the port of call at Kelle on Lake Kioga.
87.	Kachung-Lira	26	Metalled road, under construction, connecting the cotton areas around Lira with Kachung, the port of call on Lake Kwania.

Note.—There is a network of native roads and cleared tracks throughout the Eastern Province forming a complete system of communications with all native administrative and trade centres, aggregating over 1,500 miles.

THE NORTHERN PROVINCE

The Bunyoro District

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
88.	Masindi Port–Butiaba	76	Good metalled road to Masindi and from thence to Bukumi the top of the escarpment, 7 miles from Lake Albert. Government weekly motor service between Masindi Port and Masindi connecting with the Busoga marine steamers on Lake Kioga. Beyond Masindi the motor runs by arrangement. From Bukumi goods are transported by hamali carts or carriers.
	Masindi Port to Masindi	29	
	Masindi to Butiaba	47	
89.	Masindi–Hoima	34½	Wagon and light motor road. Food and water obtainable. Hoima is the old capital of Bunyoro, where there is still a large native settlement.
	Masindi to Bujenji	9½	
	Bujenji to Bulindi	14½	
	Bulindi to Hoima	10½	
90.	Masindi–Gulu	83½	Rough cart road. Food and water obtainable at camps. There are Government bank ferries
	Masindi to Pakanya	7¼	
	Pakanya to Kigumba	15.	
	Kigumba to Bwevali	13¼	

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
	Bwevali to Atura ferry	17	over the Tochi and Atura rivers. 52½ miles in the Bunyoro district.
	Atura ferry to Tochi river	17	
	Tochi river to Gulu	14	
91.	Hoima-Butiaba	35¼	Wagon road. Part of the old through route from Kampala to Lake Albert now falling temporarily into disuse owing to the opening up of the Kioga route. Food and water obtainable at camps.
	Hoima to Kitoba	7	
	Kitoba to Kigerobva	9	
	Kigerobva to Bunumi	12¼	
	Bukumi to Butiaba	7	
92.	Hoima-Mubendi road-Kampala	118	Wagon road. Continuation of above road. The Kafu ferry is the provincial boundary. Passengers who do not wish to use the Kioga route travel by this road, which is again being put in order owing to sudden blockages on Kioga. Food scarce. Water plentiful.
	Hoima to Kigaya	10¾	
	Kigaya to Kafu ferry	7	
	Thence to Kampala	110	
93.	Hoima-Fort Portal (approx.)	100	Rough district tract only. Food and water obtainable. The Nkussi river, which is bridged, is the district and provincial boundary. The distances given are approximate. 36¼ miles in Bunyoro district. From the Nkussi to Fort Portal is in the Toro district, q.v.
	Hoima to Mowhiju	7	
	Mowhiju to Namasaka	9	
	Namasaka to Kigumba	11	
	Kigumba to Karama	8	
	Karama to Nkussi river	2	
	Nkussi river to Fort Portal	63	

The Gulu District

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition.</i>
94.	Gulu-Masindi	83½	Vide Masindi-Gulu.
95.	Gulu-Kitgum	57	Rough road only. The
	Gulu to Abia ferry	22	Assua river, which forms
	Abia ferry to Kitgum	35	the district boundary between the Gulu and Chua districts is crossed at the Abia ferry. There are camps along the route at which food and water is obtainable. 22 miles in Gulu district.
96.	Gulu-Boroli-Port Liri	65	Rough road only. Camps along route at which food and water can be obtained. Port Liri is the port for the Madi sub-district on the Bahr-el-Jebel. This track provides an alternative route for Nimule.

The Chua District

97.	Kitgum-Gulu	57	Vide Gulu to Kitgum. 35 miles in the Chua district.
98.	Kitgum-Lira	76	Rough road connecting the
	Lira to Lukuku	15	head-quarter stations of
	Lukuku to Pajuli	12	the Chua and Lango
	Pajuli to Pader	9	districts. Food and water
	Pader to Paranga	7	obtainable at camps. 45
	Paranga to Assua river	7	miles in Chua district,
	Assua river to Lira	26	remainder in Lango. Government ferry over the Assua river.

<i>No.</i>	<i>Roads.</i>	<i>Mileage.</i>	<i>Condition</i>
99.	Kitgum-Madial	62	Rough road connecting the
	Kitgum to Mussini	13	military post of Madial
	Mussini to Madi Opei	13	with Kitgum. From
	Madi Opei to Teretenia	15	Madial the track goes on
	Teretenia to Madial	21	to Tarangole in the Sudan.
			Morongore is also reached
			by this route. Food and
			water available at camps.

The West Nile District

100.	Arua-Port Mutir	44½	Rough road connecting
	Arua-Ajia	12	Arua, the head-quarters
	Ajia to Aiayu	14½	of the West Nile district
	Aiyu to Powaa	11	with Mutir, the principal
	Powaa to Mutir Port	7	port for the West Nile
			district on the Bahr-el-
			Gebel. Food and water
			obtainable at camps.

Note.—Since 1914, when administration was first commenced by the Uganda Government upwards of 400 miles of good administrative roads have been opened up in this district.

THE RUDOLF PROVINCE

<i>No.</i>	<i>Roads.</i>	<i>Hours.</i>	<i>Camps.</i>
101.	Kilim-Tshudi-Tshudi		
	Kilim	—	Good camping - place with plenty of shade and running water all the year round. No food. Loro-koli's boma one hour distance. Game.
	Karita	3	Fairly open thorn country. Water only by digging river bed. No natives, food, or game.

<i>Roads.</i>	<i>Hours.</i>	<i>Camps.</i>
Lopari Pari	2½	Open country. No shade. Water from water holes. No natives. Game.
Kwatobok	3	Camp at foot of Mi De- basien. Good water and shade. No natives or food. Game.
Birikani	4½	Permanent water. Little shade. Game. No na- tives or food.
Mkwajuni	2	Good camping-place in rains but no water in dry season. No natives or food.
Masemani	3½	Good shade. Water from muddy holes. No na- tives or food.
Manimani	3¾	Good camping-place with limited amount of food. Villages in neighbour- hood.
Natakolem	3¾	Good camping-place on banks of Lochoworyan river. Permanent water. Village in neighbourhood with fair food supply.
Lokitoi Kasosogwa	3	Good camping-place with shade. Water holes. Limited food. Bakova village.
Lopei	3	Camp with shade. Water holes. No natives or food.
Kamolo	4	Fair camp. Water in pools only during wet season. No natives or food. Game plentiful.

<i>Roads.</i>	<i>Hours.</i>	<i>Camps.</i>
Paniahara	6	Good camp but only limited water supply. Villages in neighbourhood with limited food supply in wet seasons. In dry season the people trek to Kapeta, south of Mount Rom.
Lopatom's	3	Northern limit of Jiwa tribe. Large nomadic population. Water only in wet season when food can be obtained. People trek to Kapeta in dry weather.
Lokwakipi	2	Fair camping-place. Permanent water. No shade. No natives or food. Game.
Lokapel	2½	Fair camping-place. Water in wet season only. No natives or food.
Lokutas	2	Southern limit of Dodosi tribe. Permanent water. Large population. Food available.
Tshudi-Tshudi	4	Good camping-place. Permanent water. Food obtainable.

The above is a continuation of the Mbale-Kilim trade route to Abyssinia, much frequented by Sudan ivory poachers and gun runners between Abyssinia and the Belgian Congo. From Tshudi-Tshudi to Abyssinia is about 10 days across country where water is only found occasionally in the wet season. The people are nomads and follow the grazing according to the season. They are arrant thieves and a strong escort is required as raiding parties are numerous.

CHAPTER XIII

GOVERNMENT AND ADMINISTRATION

Central Government—Provincial Government—Administrative Divisions—
Justice—Police—Revenue and Expenditure—Currency—Land Tenure—
Mining.

CENTRAL GOVERNMENT

To H.M. the King in Council belongs by virtue of the Foreign Jurisdiction Act, 1890, the power of laying down in Orders in Council the principles by which the Protectorate is to be governed. In practice this power is exercised through the Secretary of State for the Colonies, who with his Cabinet colleagues is responsible for colonial policy to Parliament.

To the Secretary of State are submitted copies of ordinances made for the Protectorate by the governor ; it is in his power to disallow an ordinance in whole or in part, and his previous assent is necessary to any ordinances which varies or affects an Order in Council not repealed by the Uganda Order in Council, 1902.

H.M. in Council, through the Secretary for the Colonies, appoints the governor, the judges of the high court, and the officials for the higher administrative posts.

The supreme legislative and executive powers in the Protectorate are vested in the governor, who is also commander-in-chief. His functions, when he is absent, devolve on the Chief Secretary. The governor alone, or his deputy, is empowered to make ordinances for the administration of justice, the raising of revenue, and generally for the peace, order, and good government of the Protectorate. By means of his proclamation he can define the boundaries of the Protectorate and arrange the administrative divisions. His legislative powers are, however, subject to the control of the Secretary of State as described above. The governor exercises H.M.'s

powers in respect of Crown lands and may make grants from them or lease them ; he controls also all minerals which no one has secured the right to work. He can commute sentences and grant pardons ; his confirmation is necessary for the sentence of death, and he has the power to deport undesirables (deportees have no appeal). The governor's power of making appointments on his own initiative is confined in practice to the non-pensionable staff ; these appointments are reported to the secretary of state.

On the chief secretary devolve most of the governor's executive functions, and the governor's instructions proceed through the chief secretary's office. The official gazette in which the legislative enactments of the governor are published is issued by the chief secretary. In his legislative capacity the governor is assisted by the attorney general, who is responsible for the drafting of legislative enactments.

The central government is organized departmentally under the following officials :

The treasurer, the director of customs, the auditor, the attorney general, the commissioner of police, the principal medical officer, the director of transport, the chief forestry officer, the director of agriculture, the director of surveys, the chief veterinary officer, the director of public works, the deputy postmaster-general, the superintendent of Lake Albert Marine, the Government printer and comptroller of stationery, the economic entomologist, the paymaster of the 4th battalion King's African Rifles, and head gaoler.

The treasurer and chief secretary between them prepare the annual budget of the Protectorate.

The customs system in Uganda has recently been amalgamated with that of British East Africa and the customs establishment at Kampala is a branch only. It is concerned with the collection of customs and inland revenue.

The audit officials who are appointed by the audit department in London now audit both the revenue and expenditure of the Protectorate.

The functions of the attorney-general, besides Government

prosecutions, comprise the drafting of legislative enactments and that of advising the administration on all legal matters.

The principal medical officer and his deputy reside at headquarters, while in most of the districts there is a district medical officer who is also the local sanitary officer. Hospitals for Europeans, Asiatics, and natives are maintained at various centres. There are also outdoor dispensaries and a sleeping-sickness camp.

The department of the director of agriculture is largely concerned with the cotton production. It distributes seed *gratis* to the natives, and its native instructors advise them as to the best methods of growing. These instructors are trained on the Government's experimental plantation at Kampala.

The chief veterinary officer's department is a branch activity of the agriculture department, and is concerned with movements of stock and the diseases to which they are liable.

The director of public works is responsible chiefly for the construction and maintenance of the better class roads.

The regulation of Government transport is done by the director of transport, who also maintains the motor transport.

Transport by water is under the control of the administration only, as regards Lake Albert, where it is maintained by the superintendent of the Lake Albert Marine.

PROVINCIAL GOVERNMENT

Except in the Rudolf province, where there is a political officer engaged in keeping order, there is a system of local administration partly British and partly native throughout the Protectorate. The upper administrative structure is British, and in the four administered provinces consists of a provincial commissioner, district commissioner, and assistant district commissioners.

The provincial commissioner is the local representative of the governor, and as such is responsible for all administrative activities in his province. He has no legislative powers, but has judicial functions as described below. Each province is for the purposes of British administration divided into districts, at the

head of which is a district commissioner. The chief duty of this official is the immediate supervision of the native administration, especially in the matter of the assessment and collection of taxes. He is in direct contact with the native administrative machine and presides periodically over the *saza* council, where he explains new laws and the general requirements of the Government. The district superintendent of police and the local representatives of Government departments, such as the district agricultural and medical officers, work in co-operation with the district commissioner. His judicial duties are described below. He reports monthly to the provincial commissioner.

The assistant district commissioner when he is not in charge of a sub-district acts as the deputy of the district commissioner.

Between the British administrative system and the natives there is a native organization which varies in different localities. This organization is highly developed in the province of Buganda, in the districts of Toro and Ankole, in the western province, and in the Bunyoro district of the northern province; elsewhere it is rudimentary and the government is engaged in creating new institutions. The present state of the native system is, therefore, capable only of regional treatment. This account excludes the system of native justice dealt with below.

Subject to the control of the Governor, the *Kabaka* exercises direct rule over the natives of the Buganda province which is co-extensive with the Buganda kingdom. The area of Buganda is 22,370 square miles, including a water expanse of 5,745 square miles. The legislative power belongs to the *Lukiiko* or native council, which consists of about 90 members; these are the three following principal ministers of State who are *ex officio* members, the *Katikiro* or Prime Minister, who is the president, the *Omulamuzi* or chief justice, who is vice-president, and the *Omuwanika* or treasurer, who acts as president in the absence of the first two. There are also chiefs of the twenty *sazas* or counties into which Buganda is divided for purposes of native administration, and, in

addition, three notables from each county and six additional men of importance who are all nominees of the *Kabaka*.

The function of the *Lukiko* is to discuss all matters concerning the native administration of Buganda and to submit to the *Kabaka* the resolutions passed by a majority of its members. Before these can become law the sanction of the governor is necessary.

The executive powers of the *Kabaka* are exercised through the principal ministers of state. The *Kabaka* and his ministers receive salaries out of the revenues of the Protectorate.

At the head of each *saza* or county is the *saza* chief who is responsible to the *Lukiko* for the collection of taxes, the upkeep of roads, and the maintenance of public order. For his services he receives a salary out of the Protectorate revenue and enjoys the usufruct of the estate attached to his office. Each *saza* is divided into *Gombolola* divisions under *Gombololas* or sub-chiefs, of whom there are approximately ten in each *saza*. The *Gombolola* chiefs have various titles, in order of precedence as follows :

the Mumyuka
Sabadu
Sabagabo
Sabawali

the Musale
Mutuba I
Mutuba II
Mutuba III

Each *Gombolola* chief has under him officials styled *Abemiruka*.

The chiefs subordinate to the *saza* chief perform within a limited sphere the same functions and are remunerated out of the *Lukiko* funds.

In the western province which comprises an area of 13,766 square miles including 455 square miles of water, there are the three administrative divisions of Toro, Ankole, and Kigezi. Each of the first two districts is co-extensive with a native kingdom in which the native organization is fairly well developed. At the head of the Toro kingdom is the *Mukama*, who, with the assistance of his *Katikiro*, rules his country through a *Lukiko*, consisting of *saza* chiefs and recognized

sub-chiefs. The *Lukiko* meets daily in the *Mukama's* court-house to discuss affairs of state and to announce any new ordinance of the Protectorate or instruction received from the district commissioner. The functions of the *saza* chiefs and their subordinates are much the same as in Buganda and provisions similar to those in the Uganda Agreement were made in an arrangement dated June, 1900 for the remuneration of the *Mukama* and the chiefs.

There are 10 *sazas* or counties in Toro.

In Ankole a similar organization exists. The *Mugabe* of Ankole is at its head and is assisted by a *Lukiko* of 40 members nominated by the *saza* chiefs and appointed by the *Mugabe* and his *Katikiro*. The council has much the same powers as the Buganda *Lukiko*. For the purposes of the native administration Ankole is divided into 14 *sazas* each with its *saza* chief and subordinate *Gombolola* chiefs who are responsible for the collection of taxes, the administration of justice, and the maintenance of order.

Provision for the remuneration of the *Mugabe* and his chiefs was made in an agreement of October 1901.

The situation in the Kigezi district is different. The native organization varies in different territories.

In British Ruanda the chief authority belongs to a chief who governed originally as an agent of the 'Sultan' Masinga of Ruanda. The ruling chief belongs to the Batusi tribe, but his authority extends over the Batwa and the Bahutu. There are some 14 sub-chiefs, the most important being the chief of the Batwa, who himself has under his authority several subordinate chiefs.

In the Rukiga area there are over a hundred small clans owing no allegiance to a suzerain. Steps are being taken to organize these under four important chiefs. In this region in the south there are natives owing allegiance to a Mtusi chief, whose head-quarters is in Belgian Ruanda.

Kayonsa is an independent state, as is also Churchizi ; both of these are supervised by a Government agent with an armed following.

In the Ruzumburu region the ruling caste is Bahima, with a chief who is supervised by a native adviser appointed by the Government.

Northern province.—The area of this province is 33,099 square miles, including 1,038 square miles of water, chiefly territorial water in Lake Albert. For administrative purposes the province is divided into the districts of Bunyoro, Gulu, Chua, and West Nile.

In Bunyoro there is an elaborate system of native government at the head of which is the *Mukama* and nominal ruler of the country. He is assisted by two *Lukikos* at Masindi and Hoima; the *Mukama* himself presides over the Masindi *Lukiko*. Each council meets once a week when the district commissioner explains new laws, economic conditions, and requirements, inquires into local taxation and arranges for labour and food supplies. There are six *sazas* in Bunyoro, each with a *saza* chief, and under him *Gombolola* chiefs and lower grade chiefs.

The chiefs here do not show the same capacity for Government as the Baganda, and a post on the native administration is chiefly sought after as a means of escaping labour services.

In the Gulu, Chua, and West Nile districts there is practically no organized native administration. For administrative purposes the tribal chiefs possess little capacity or authority, and this has to be established by the Government officials, who are instructing the chiefs in administrative duties. A native *Lukiko* has been set up where the chiefs meet under the auspices of the district officer to discuss administrative problems.

In the West Nile district the same condition of affairs obtains, except that no *Lukiko* has been established.

The Eastern province.—This province is the largest in the Protectorate, and comprises 34,526 square miles, of which 7,766 square miles is water. It is divided for administrative purposes into the districts of Busoga, Bukedi, Teso, Lango, Karamoja, and Lobar. The last two districts are unadministered, and of the other three only Busoga has a native organization

which is at all developed. Busoga district is divided for purposes of native administration into ten *sazas*, which roughly correspond with tribal divisions. The *sazas* are ruled by *saza* chiefs assisted by subordinate chiefs, and there is a central *Lukiko* at Jinja.

In Bukedi there are eight *sazas*, but in only three of these are there *saza* chiefs. Of these the *saza* chief of Mbale is exceptional, being a Ruanda with Baganda subjects. Elsewhere the natives are broken up into clans with chiefs, whose authority is of no use for administrative purposes. In 1904 native instructors, mostly Baganda, were installed in various *sazas* for the purpose of creating a native organization and instructing picked chiefs in administrative duties. It was expected that by the end of 1913 the chiefs in most of the *sazas* would be competent to manage their affairs without assistance.

In Teso district the same state of affairs existed, but the chiefs in most of the *sazas* are now able to manage their own affairs, and for judicial purposes there is a *saza* court held in the local centre of each county once a week.

In the Lango district also it has been necessary to employ Baganda and Banyoro agents to create a native organization superior to that of the village and the village headman. Sub-chiefs over groups of villages and a chief over the sub-chiefs have been successfully created, and instructed in the work of administration.

ADMINISTRATIVE DIVISIONS

<i>Province.</i>	<i>District.</i>
Buganda	Mengo
	Masaka
	Mubendi
	Entebbe
Eastern	Busoga
	Bukedi
	Teso
	Lango
	Karamoja
	Labor

<i>Province.</i>	<i>District.</i>
Western	Toro Ankole Kigezi
Northern	Bunyoro Gulu Chua West Nile
Rudolf	Turkwel Turkana Dabossa

JUSTICE

Law and Procedure.—The main source of law in the Protectorate is the orders in council made by His Majesty under the Foreign Jurisdiction Act. A few Imperial Acts such as the Copyright Act also apply. Of these orders in council the Africa Order in Council, 1889, the Uganda Order in Council, 1902, and the Uganda Order in Council, 1911, are the most important. Although the provisions of the Africa Order in Council, 1889, are for the most part repealed, some of them, including the application of certain Indian Acts, still have effect. The Uganda Order in Council, 1902, contains the basis of the constitution of the Protectorate, although its provisions are subject to the agreements made with the native kingdoms of Buganda, Ankole, and Toro. It vested the commissioner, now the governor, with the power of primary legislation for local needs in the form of ordinances and of secondary legislation in the form of proclamations and orders made thereunder. This body of law, by virtue of the Uganda Order in Council, 1911, is governed in criminal matters by the Indian Penal Code, in civil matters by the civil law in vogue in England in 1902, and where these do not apply, by English common law, equity and statutes of general application. The enactment and application of local laws are, however, qualified by the force of local circumstances. The meaning of this proviso is made clear in the Uganda Order in Council, 1902, which provides that the commissioner in the drafting of ordinances shall have respect to local custom, and that in

cases involving natives the courts shall decide according to substantial justice, and be guided by native custom where that is not repugnant to justice and morality and not inconsistent with an ordinance or order in council.

The procedure in civil and criminal cases is that of the civil and criminal procedure codes of India.

The Courts.—Justice is administered by two sets of institutions, the British courts and the native courts. Whereas all serious cases and those affecting special branches of the policy of the administration necessarily come before the British courts, the latter also exist as alternative tribunals to native courts for less important causes.

The High Court was constituted by the Uganda order in council, 1902, which conferred on it full jurisdiction, criminal and civil, over all persons and matters in the Protectorate. It hears appeal cases from the subordinate courts over which it also exercises a general supervision as to jurisdiction and procedure. It is a court of first resort for civil and criminal cases, a court of admiralty with a jurisdiction over navigation on inland waters, and has a special jurisdiction in bankruptcy cases. Where it is a court of first resort for criminal cases and in civil cases there is an appeal to the Court of Appeal of East Africa, except where the parties are natives of the Protectorate, when there is no appeal in criminal cases, and only in civil cases where the value involved is Rs. 1,000 or over. In cases of bankruptcy dealt with under its special jurisdiction there is no appeal from the High Court. One judge can constitute the court. The courts of session are empowered to try the more important criminal cases involving non-natives which cannot conveniently be dealt with by the High Court. For the purposes of the administration of justice by the sessions courts the Protectorate is divided into groups of districts formed by the governor, and in each of these is a sessions court presided over by a judge, often the provincial commissioner. The Courts ordinance, 1911, further provided for the division of the Protectorate into judicial districts which correspond practically to the administrative districts.

In each of these districts is a district court presided over by a district judge. These courts possess jurisdiction on criminal and civil matters over the natives and supervise the native courts. The criminal jurisdiction of this court is that of district courts under the Indian Penal Code, in civil matters, where the parties are natives, to an unlimited amount, and in other cases up to the value of Rs. 1,500. There is an appeal to the High Court. The provincial commissioner, or more often the district commissioner or his deputy, presides over the district court.

In each district there are additional district courts with powers similar to but less extensive than those of the district courts. These courts possess a jurisdiction concurrent with that of the native courts, and are presided over by administrative officials, holding the judicial rank of subordinate judge.

Besides the ordinary jurisdiction there is in each district a magistrate's jurisdiction and three classes of magistrate with graded powers. These magistrates can, subject to the confirmation of the high court and the governor, pass sentence of death on natives convicted of homicide. In Entebbe, Kampala, and Jinja the magistrates are specially appointed ; and at Bombo the second in command of the 4th Battalion of King's African Rifles is a magistrate of the first class. Elsewhere this jurisdiction is exercised by the administrative officials.

An ordinance in 1915 enabled any European to act as a justice of the peace with powers to issue a warrant for arrest ; prisoners, however, are tried by the magistrates.

The system of native justice varies in different localities. In places it is administered by long established institutions and elsewhere native institutions have had to be created by the governor under powers conferred upon him by the Courts Ordinance, 1911. The procedure of these courts is regulated by the high court, and from all of them there is an appeal to the supervisory British courts. The supervisory courts alone are empowered to hear the evidence of non-natives.

In Buganda by virtue of the agreements of 1902, 1905, and

1917, the administration of justice where the parties are natives of Buganda is, generally speaking, as follows :

At the head of the system is the court of the *Lukiko*, presided over by the *Kabaka*, or one of the principal ministers of state and consisting of a committee of seven or more. Subject to certain restrictions, supervision, and revision exercised by the provincial commissioner, the *Lukiko* possesses full jurisdiction civil and criminal over natives in Buganda, and is a court of first resort, a court of appeal, and a revisional court.

The courts of the *Abamasaza* presided over by the county chiefs, sitting with any two or more first grade sub-chiefs, possess jurisdiction within their *saza* within certain specified limits. They supervise the courts of the sub-chiefs and hear their appeals.

The courts of the *Abagombolola* presided over by first grade sub-chiefs have a jurisdiction in petty cases within their administrative areas.

The following cases are excluded from the provision of the native courts in Buganda : cases where death has resulted, cases in townships, cases where any of the parties are in the government service, and all breaches of special laws (arms, game, forest, fiscal, and mining). The High Court decides in cases which come within its jurisdiction under the divorce ordinances.

A similar condition of affairs exists in the kingdoms of Ankole, Toru, and Bunyoro where the judicial system corresponds with the system of native administration already described. As in Buganda supervision is exercised by the British district courts. Where no native system of justice existed before the governor has in certain localities set up native courts similar to those in the *sazas* of Buganda.

POLICE

The police force of the Protectorate is a semi-military body commanded by the commissioner of police, and officered by superintendents, assistant-superintendents, with inspectors

and assistant-inspectors as N.C.O.'s. Its pre-war strength was 1,098 of all ranks, of whom 21 were Europeans. The African ranks are composed chiefly of Baganda, Kavirondo, Nilotic, and miscellaneous Bantu, with a small proportion of Kiswahili, Wanyamwezi, and Wanyema. Recruits prior to entering on their duties undergo a course of six months' training at the central dépôt Kampala, in both police and military functions. Officers and inspectors are required within their first year's service to pass a preliminary examination in law procedure, police ordinance, evidence, language, drill, musketry, &c., and there are examinations for promotion.

Apart from the ordinary police duties of preserving peace, the prevention and detection of crime, the force garrisons out districts and carries out patrol work. Generally a police superintendent is stationed in each district where he co-operates with the local administrative officials. The police are further liable for military service in defence of the Protectorate.

REVENUE AND EXPENDITURE

The revenue of the Protectorate is derived from various sources, but the bulk is furnished by direct and indirect taxation. The only direct tax is the Poll Tax, which is levied all over the Protectorate, except in the Rudolf Province, the districts of Karamoja and Lobar in the Eastern Province, and in the West Nile district of the Northern Province. Its amount varies, being in some places Rs. 5 and elsewhere Rs. 3. The proceeds of this tax in 1917 amounted to over £180,000, or roughly four-sevenths of the total revenue. The actual collection of the tax is done by native chiefs, who keep a register of those liable, and the money is paid over to the district administrators. Payment is seldom in kind.

Certain persons are exempted from the tax on various grounds, such as distinguished public service, disability through age or infirmity, service in the military or police forces, tenancy of Crown lands, attendance at missionary

schools, and previous exemption by the terms of the Uganda Agreement, 1900.

The source of revenue next in importance is customs duties. For customs purposes Uganda and British East Africa are treated as one area, and the various ordinances governing the duties levied in the two Protectorates are now in process of being consolidated. The arrangement is that after the working expenses have been deducted from the gross proceeds, the net revenue is divided so that British East Africa receives two-thirds and Uganda one-third. With certain specified exemptions, of which transport matériel is the most important, all imports pay a ten per cent. *ad valorem* duty. The duty on spirits, however, is roughly fifty per cent. *ad valorem*. In 1917 there were export duties on ivory, fifteen per cent. ; gum copal, six per cent. ; borites, hides and skins, rhinoceros horn and hippopotamus teeth, tortoise shell, chillies, ten per cent. ; ebony and other fine woods, cowrie and other sea shells, five per cent. ; rubber, other than plantation rubber, four per cent. ; and a fixed charge per animal on horses, camels, and donkeys.

Other sources of revenue are game licences, land rents, sales, telegraph and transport services, municipal receipts and market dues. The road and wharfage dues, until recently a source of considerable revenue, are now abolished. The total revenue of the Protectorate for the year 1916-17 was £315,458, as against £287,025 for the previous year. The increase was due largely to an increase in the receipts of the import duties.

The annual grant-in-aid from the Imperial Treasury was last made in the financial year 1914-15, when it was found to be possible to dispense with it.

As far as possible expenditure is regulated by the 'half and half' principle laid down by the Lords of the Treasury, i. e. the expenditure is increased each year by half of the amount of the estimated increase in the revenue for the year.

The chief item of expenditure is that for military purposes, which at present is, by arrangement with the War Office,

approximately the same as the amount paid out of the Protectorate funds for this purpose in 1914. In 1917 the amount was roughly £40,000, representing about one-seventh of the total current expenditure. Expenditure on provincial administration and on native affairs was in each case one-tenth, on public works one-fourteenth, on transport one-fifteenth, and on land survey one twenty-eighth of the total for the year, which was roughly £289,300.

An item which now generally appears on the debit side of the Uganda statement of revenue and expenditure is the difference between the annual revenue and expenditure of the the Busoga Railway. The annual recurrent expenditure and gross revenue do not appear there but in the accounts of the Uganda Railway.

The credit balances on ordinary annual revenue and expenditure since the grant-in-aid ceased were about £2,000 in 1915-16 and about £26,000 in 1916-17.

For funds for extraordinary capital expenditure resort has been made to borrowing. In 1910-11 a sum of £120,000, and in 1911-12 a sum of £50,000 were lent at $3\frac{1}{2}$ per cent. interest by the Imperial Treasury for the purpose of building a railway from Jinja to Namasagali in the eastern province of the Protectorate. Repayment through a sinking fund at the rate of 1 per cent. is being made; so far (1917) £7,165 8s. has been repaid. In the year 1912-13 a sum of £125,000 was lent at $3\frac{1}{2}$ per cent. interest by the Imperial Treasury for the purposes of constructing a railway from Port Bell to Kampala and for improvements of communications in the eastern province. Repayment through a sinking fund at the rate of $1\frac{1}{2}$ per cent. has been made to the extent of £1,875. In the year 1914-15 a loan from the Imperial Treasury of £329,000 for various purposes was intended, but so far only £5,160 has been obtained, and this amount has been devoted to road construction, and the Busoga Railway and marine. This sum is to be repaid in thirty-seven annuity payments beginning in 1919. The total actual indebtedness of the Protectorate in 1917 was therefore about £291,120.

Certain localities enjoy a measure of financial autonomy. In the eastern province and in the Gulu and Chua districts of the northern province, administrative and other fines are not credited to the Treasury at Entebbe, but are administered by boards consisting of a district commissioner and three elected members of the local *Lukiko*, under the control of the provincial commissioner. The funds are paid into the Treasury as a deposit, and are withdrawn as required for local public works.

CURRENCY

The standard coin of the Protectorate is the silver rupee of British India. The subsidiary coins are :

Silver—50-cent piece and 25-cent piece, which are legal tender up to Rs. 5.

Nickel bronze—10-cent piece, 5-cent piece, 1-cent piece and $\frac{1}{2}$ -cent piece, which are legal tender up to 50 cents.

The rupee of the late Imperial British East Africa Company is legal tender, as are also to a limited extent the half rupee and quarter rupee of British India and of the Imperial British East Africa Company. Sovereigns are unlimited legal tender. The coin estimated to be in circulation amounts to nearly Rs. 10,000,000. There is a Government currency note issue, and the notes in circulation are of the following denominations: Rs. 5, Rs. 10, Rs. 20, Rs. 50, Rs. 100, and Rs. 500. There is no private note issue. The weights and measures are the Imperial weights and measures.

LAND TENURE

Land in the Uganda Protectorate falls into three classes :—Crown lands, freehold land acquired from the Government by private purchase, land held with freehold rights by the natives either in virtue of agreements made between their rulers and the British administration or of the fact that it cannot be claimed as Crown land.

By the Crown Lands (Ascertainment) Ordinance all land in the Protectorate, unless held under a Government certificate

of ownership or in virtue of a claim sustained on the grounds of continuous occupation or cultivation for a specified period, is deemed to be Crown land. All forests, subject to certain native rights, belong to the Crown. Crown land can be sold or leased by the Governor. Freeholds are granted up to a maximum of 1,000 acres, but this limit may be exceeded with the permission of the Secretary of State. A lease is first granted for a period of three years, and within that time one-tenth of the area must be put under cultivation or a sum of Rs. 7.50 per acre must be expended in improvements. When these conditions have been fulfilled the freehold is granted, mineral rights being reserved to the Crown.

Leases are granted for periods not exceeding ninety-nine years, and the rent per acre varies in accordance with the duration of the lease. Lease is by private treaty.

In townships leases are either for forty-nine or ninety-nine years. No freeholds are granted. All leases of township plots carry with them the obligation to erect on the plot, leased within a specified period of time, buildings of a definite value. The plots leased vary in size according as they are required for trading or residential purposes. Temporary occupation licences without the condition as to building or cultivation for plots not exceeding five acres at rents varying according as the land is in a township or is an agricultural allotment, are granted to natives and non-natives for a term of one year and thenceforward at three months' notice to quit.

In Buganda, Ankole, and Toro, certain areas have by agreements with the rulers of these countries been assigned with freehold rights to certain chiefs and landowners. The peasantry became tenants-at-will. In Buganda provisional certificates of title were first of all issued to the native landowners. As the work of survey progressed final certificates of title conferring a freehold title were issued; in some cases these final certificates are granted on the recommendation of the *Lukiko*. Native land which has been surveyed is described as *mailo*.

No native in Buganda can acquire, other than by inheritance,

more than thirty square miles of *mailo* land. An owner of *mailo* cannot be compelled to yield any portion of the produce of his land to a superior chief. The work of settlement has taken some time, and in 1913 a new agreement was necessary to deal with the surplus, lapsed, and deficient estates.

In places other than Buganda, Ankole, and Toro, the only title as against the Crown is based on occupation ; as against other natives the title varies according to local custom. Among the cattle-owning peoples the hold on the land is vague. In Bunyoro and in parts of Busoga the land belongs to the king or the chief of the tribe. In Busoga also, freehold right can be acquired by purchase. There are however various other titles.

Throughout the Protectorate no native land can be alienated to a non-native except with the approval of the *Lukiko* and the consent of the Governor. In such cases the land is first transferred to the Crown and held under a three years' lease, with the usual condition as to improvement before it becomes the freehold property of the purchaser. The sale carries with it mineral rights subject to a 10 per cent. *ad valorem* duty.

MINING

Licences for prospecting for minerals are issued on payment of Rs. 5 and are valid for five months. On the discovery of gold, silver, or precious stones, the prospecting area can be abandoned and five alluvial or seven quartz claims can be marked off and registered as prospector's claims. The area of each claim is limited, in the case of an alluvial claim, to 150 ft. by 50 ft., and in the case of a quartz reef claim to 150 ft. by 400 ft.

Mining leases are issued for areas not exceeding 25 acres, and mineral leases not exceeding 506 acres. Royalties payable vary in accordance with the mineral exploited. Detailed information is obtainable from the Commissioner of Mines. Entebbe.

CHAPTER XIV

HISTORY

Early History—Religious Wars—Britain and Germany—The I.B.E.A.—Portal's Mission—The Mohammedan Revolt—The Bunyoro War—The Sudanese Mutiny—Johnston's Special Commission—Recent History—Survey of Economic Development.

Early History.—The more important of the nations comprised in the Uganda Protectorate are said to have their origin in political organizations founded by the 'Hamitic' race, which at some remote period established itself as a ruling caste in the countries of Bunyoro, Buganda, Toro, and Ankole. The centre of its political power was originally in Bunyoro, but in the course of time independent kingdoms were formed in Buganda, Toro, and Ankole; in Toro, it is said, as lately as 1800. Of these kingdoms, Buganda, by reason of the superior intelligence of its people, became the most important, developing a type of social organization superior to that of its neighbours. There is no means of estimating with accuracy the antiquity of the kingdom, but according to tradition the present monarch is the thirty-second in direct descent from the founder of the dynasty. Early events are inextricably mixed up with mythology; there are, however, references to wars against the peoples of Busoga, Bukedi, and Bunyoro.

The first monarch of whom there is any reliable information is Suna, who is thought to have begun his reign in 1837. This monarch appears to have laid the foundation of an empire, and the chiefs of Busoga, Bunyoro, Busongora, and the islanders of Buvuma all at one time or another acknowledged him as their overlord. Frequent campaigns, however, were necessary to enforce homage and the payment of tribute. During Suna's reign, which ended about 1860, Arab traders first

appeared in Buganda and the *Kabaka* provided them with a special quarter in his capital, Mengo.

The first white man to penetrate to Buganda was Speke, then on an expedition to explore Victoria Nyanza. He arrived at Mengo in 1862, a short time after the death of Suna. Mtesa, son of Suna, was then on the throne. Buganda, as described by Speke, was a semi-civilized society with a despot at its head. The country was split up into provinces, which in origin may have been independent kingdoms, and at the head of these were the provincial chiefs appointed by the *Kabaka*, who promoted or deposed them at will. Whatever title to the land was possessed by these chiefs disappeared with their deposition from office. The central government was at Mengo, and at its head was the *Kabaka*, whose decisions were executed and dignity maintained by a multitude of court officials. Chief of these was the *Katikiro*, or prime minister, who, with the provincial chiefs and other officers of the royal household acted as a sort of advisory council of the *Kabaka*. The rule of the latter was marked, daily, by capricious acts of cruelty which passed for the administration of justice, and, on occasion, wholesale massacres of his subjects as a human sacrifice to appease the spirits of his ancestors. Suna had earned for himself the title of 'Cruel', and his son, Mtesa, with a reputation for mildness, shocked Speke by his bloodthirstiness. After leaving Buganda Speke journeyed home through Bunyoro and the Egyptian Sudan. He described the Banyoro and their king Kamrasi as being far behind the Baganda in civilization. At Gondokoro he met Baker, whose presence in those regions was the origin of the suspicious hostility with which the Banyoro kings came to regard the white emissaries of the Egyptian Government, and Europeans in general.

The next account of the country is furnished by Stanley who visited it in 1875. His opinion of Mtesa, who was still on the throne, was much more favourable than that of Speke. He attributed the improvement in some measure to Mohammedan teaching and culture. In the interval which had elapsed since Speke's visit the influence of the Arab slave

dealers and other traders, who were now regarded almost as ordinary citizens of Buganda, had become very strong. Mtesa himself and his chiefs had adopted Arab dress in place of the native costume made of bark cloth. Through their agency also the use of firearms had become fairly widespread and a large contingent of musketeers took part in the campaign witnessed by Stanley against the islanders of Buvuma. Some converts to Islam had been made, and Mtesa professed an interest in the new religion. Mtesa's dominions, according to Stanley, comprised Buganda, Buddu, Koki, Busoga, Bukedi, Bunyoro, Busagara, or Ankoli, Karagwe, Busui, Busongora, the Sesse and Buvuma Islands. From peoples like the Banyoro, Bavuma, and Basoga tribute was often not forthcoming until an army had been sent to fetch it. While at Mengo Stanley met the Belgian Linant de Bellefonds, an emissary of the Egyptian Government and the forerunner, doubtless, of Gordon's annexations, in Bunyoro, which occurred a year later. The occupation of Mruli by an Egyptian force occasioned Mtesa some alarm and probably gave rise to the opinion among Baganda chiefs that the white men would eventually 'eat up' the country. It was to Linant de Bellefonds that Stanley entrusted his letter appealing for missionaries to be sent to Buganda. The Belgian was murdered on his way back to Khartoum, but the letter was recovered and forwarded by Gordon to England, where it appeared in the *Daily Telegraph*.

The Missionaries.—In response to Stanley's appeal a party of missionaries, sent by the Church Missionary Society, travelling via Zanzibar, reached Buganda in June 1877, and the sole survivor of this party was joined in November of the following year by the famous Alexander Mackay; and in February 1879 a further party reached Uganda, having come through Egypt and the Sudan. A few days later Père Lourdel and a colleague, members of the Order of White Fathers established by Cardinal Lavigerie in Algeria, made their appearance, and were followed shortly afterwards by two others.

There were now four influences at work in Buganda, all of which were nominally religious. They were destined to

have, however, an important effect on the politics of the country.

There was, in the first place, the original paganism to which the bulk of the *Bakopi*, or peasantry, adhered, and with which, as part of the old order of things, the Buganda chiefs who were opposed to innovations of alien origin were identified. Mtesa himself and many of his courtiers seemed to have been ready to abandon *Lubare*, as the pagan worship was called, in favour of the novel beliefs of the Arabs and Christians, but its subservience to dynastic interests, and its silence on the subject of personal conduct, influenced them in its favour. In times of crisis the *Kabaka* had resort to the priests and priestesses of *Lubare*, and he died a pagan. His *Katikiro* was a much more genuine believer and a determined opponent of foreigners and their customs.

The Mohammedan religion which had been introduced by the Arab traders made only small headway. Mtesa at one time regarded it favourably and a number of his courtiers became converts. But the rite of circumcision was generally unpopular, and when Mtesa discovered that various precepts of the Koran conflicted with absolute loyalty to himself, he caused, in a fit of anger, the execution of about one hundred converts. Arab influence was otherwise considerable, and, as a consequence of the suppression by British cruisers of the slave trade at sea, was strongly anti-British. The Protestant missionaries were therefore accused by the Arabs of all kinds of ulterior motives, among others that they were spies sent by Gordon as a preliminary to the annexation of the country.

Christianity was first brought to Mtesa's notice by Stanley. The welcome accorded to the first missionaries was dictated chiefly by Mtesa's desire for renown and a wish to avail himself of their services. (Mackay, by his mechanical skill, earned for himself a reputation which extended beyond Buganda's borders.) The *Kabaka's* interest in Christianity was merely academic, and it was considerably heightened by the arrival of the French priests with their rival tenets. For him, as for many of his chiefs, the insistence of Christianity on

monogamy was a stumbling-block. He was, on the other hand, genuinely concerned that, as in the case of Islam, the conversion of his subjects might undermine his despotic authority, and suspected that it might even pave the way to the annexation of his country by the Europeans. Permission to teach was never actually given to either set of Christian missionaries, and though no open violence was offered, the work of evangelization had to proceed unobtrusively.

In such circumstances the Protestant and Catholic missionaries, though jealous of one another's activities, yet maintained friendly relations.

In the spring of 1882 five of the converts to Protestantism were baptized. The Roman Catholic missionaries also claimed several catechumens or learners, but they considered their task so difficult that at the end of 1882 they left Buganda for the south of the lake.

Mtesa died in October 1884, and was buried in a coffin made by Mackay. He was succeeded by his son Mwanga, a youth of eighteen, chosen by the chiefs because of his great physical likeness to his father. Except for this and his father's blood-thirstiness, Mwanga bore no resemblance to Mtesa. He possessed none of his courage or common sense, but was the slave of self-indulgence and a craven fear. The most powerful person in the state was the old *Katikiro*, who soon seized an opportunity of giving vent to his hatred of the Europeans.

Soon after Mwanga's accession a number of the young chiefs, among them the *Gabunga* or Lord High Admiral, openly professed Christianity, and in the mind of the *Kabaka* and his minister this could be connected with the activities of the white men at the coast. So, towards the end of January 1885, the *Katikiro* struck. Using the *Mujasi*, a high court official and a Mohammedan, as his instrument, he caused the arrest and execution by burning of several Christian boys belonging to the missionaries' household. The Protestant community scattered, but soon came together again, and in July 1885 a church council, with native members, was

formed. In the same month Père Lourdel and his colleagues returned from the south of the lake, and found that their Buganda converts, with few exceptions, had remained faithful. Mwanga gave them a favourable reception.

The *Kabaka*, relieved possibly by the news of Gordon's death, left the missionaries of both sects unmolested for some months, but a combination of circumstances caused his fears to revive. News of the German occupation of Busagara on the southern side of the lake arrived about the same time that the approach of Hannington to take up his duties as Bishop of East Equatorial Africa was announced. Mwanga had been assured that Hannington would come by way of the lake and not by the route through Busoga. It was from the latter side that Buganda was most open to invasion, and round this fear had grown up a superstition that the conqueror of Buganda would come by this route. Apprehension of danger from this quarter had already been aroused by Thomson's approach in 1883, through the Masai country. When, therefore, it became known that Hannington had changed his plans and was already approaching the Nile, Mwanga thought he had been deceived. An order was sent to the local chief at Lubwas for Hannington's immediate execution, and this was carried out on October 29, 1885. Ever afterwards Mwanga was haunted by the fear of retribution, and he displayed even greater anxiety as to the movements of white men.

About May 1886 Mwanga's suspicions about the increasing strength of the Buganda Christians, aggravated by their open protests against his morals, blazed out again into persecution; this time on a greater scale than before. Both Protestant and Catholic converts were executed wholesale, the missions were soon deserted, the Christians going into hiding, and the missionaries thought seriously of leaving the country. In the following August the Protestant missionary left, and Mackay, after many vain attempts, succeeded in gaining the *Kabaka's* permission to depart, in July 1887, when he proceeded to the south end of the lake. The French priests remained and were

alone until the arrival of the Protestant missionary Gordon in August 1887. Père Lourdel and his colleagues, who were not so clearly identified with the political ambitions of the European powers, were looked on with some favour by Mwanga and had private access to his palace. With the arrival of Gordon relations between the two sects of Christians became less friendly.

Meanwhile Mwanga had made himself unpopular among his subjects of every persuasion. The Christian chiefs were already alienated by Mwanga's conduct, both private and public, and many of the peasantry, who had been victims of the cruelties practised on royal progresses were ready for rebellion. The one party with which Mwanga had had no open breach was the Mohammedan. But, urged on by the *Katikiro*, whose hatred of foreigners now amounted to fanaticism, and having invoked his heathen deities, the *Kabaka* concocted a plot to maroon on an island in the lake the adherents of both Christianity and Islam. The plot failed and, with only two or three followers, Mwanga fled from the country. Roman Catholics, Protestants, and Mohammedans now co-operated, with many points of disagreement among themselves, in the face of a common danger, to set on the throne Kiwewa, eldest son of Mtesa (September 1888).

Religious Wars.—The event was important. For the first time those political forces which drew their inspiration from alien leaders whose interests, identical at the moment, were in essence antagonistic, had deposed the national government. In its place was set up a coalition government of three parties. In the first *baraza* held by the new king the chieftainships were divided amongst the Roman Catholics, the Protestants and the Mohammedans. Nyonyi Entono, a Catholic, became *Katikiro*, Apolo Kagwa, a Protestant, *Mukwenda*, and the ex-*Mujasi*, hitherto a Christian persecutor, became *Kangao*. Religious liberty was granted to all sects and the Arabs obtained access to the Bunyoro trade. Both Christian sects gained many new converts at this time. But it could not be hoped once the menace of Mwanga's despotism had been

removed, that a government in which the moving spirits were rival European missionaries and Arab slave dealers, would endure. The new *Kangao* and his allies the Arab traders were not satisfied with their subordinate position in the state, though their share of offices was proportionate to their numbers. A second *coup d'état* was effected. The Christian chiefs were forcibly excluded from their offices and soon after followed the imprisonment and eventual expulsion from the country of the Christian missionaries (December 18, 1888). They fled to the south end of the lake while their followers sought refuge with Ntali, king of Ankole. The Mohammedan party next proceeded to force Kiwewa to embrace Islam. But on the advice of the old *Katikiro*, who from his refuge at Mtesa's tomb still attempted to direct national policy, he refused, and failing in an attempt to slay his ministers fled to the province of Singo. Karema his brother was set up in his place.

Meanwhile Mwanga who had first sought refuge with the Arabs at Magu made his escape to the Roman Catholic mission at Bukumbi. A reconciliation was effected and plans set on foot for the reconquest of Buganda. In these schemes the Protestant missionaries would at first have no part but their hand was forced when Karema himself took the offensive against the Christian refugees on the western side of the lake. Père Lourdel was now acting as chief adviser of Mwanga while Stokes, a white trader, was relied upon for supplies of munitions of war. After a preliminary success in Buddu the Christian army was routed and lost its leader, the Catholic Nyonyi Entono. Later Mwanga made his base on the Sese Islands where in August 1889 he was joined by the Protestant missionaries. A new advance was begun and after a series of victories over the Mohammedan forces the Christian army entered Mengo on October 11, 1887. It did not remain there long but as a result of a defeat sustained on November 22 dispersed to Buddu and Chagwe, while Mwanga and the missionaries retired to Bulingugwe Island in Murchison Bay. From here Lourdel on behalf of Mwanga sent an

urgent appeal, being the third, to Mr. Jackson of the Imperial British East Africa Company.

Britain and Germany.—The Imperial British East Africa Company was founded in April 1888, and received a royal charter in September of the same year. Besides the exploitation of concessions already granted by the Sultan of Zanzibar, the new company had for its object the acquisition from chiefs within the British sphere of influence in Africa of territories with or without sovereign rights which it proposed to administer in accordance with those rights.

The British sphere of influence as far as East Africa was concerned had been defined by an agreement between Great Britain and Germany, made on November 1. 1886. By this agreement a tract of country bounded in the north roughly by the Tana river and in the south by the Rovuma had been partitioned between the two Powers by a line beginning at the north of Umbe river skirting the northern base of Mount Kilimanjaro and running thence to the eastern shore of Victoria Nyanza which it reached at the point of intersection of the 1st degree of south latitude. In accordance with the terms of this agreement the British East Africa Association made treaties with chiefs in the British sphere up to 200 miles inland.

The Stanley Emin Pasha Relief Expedition of 1887 caused the question to be raised of territories situated in the rear of the two spheres for which no provision had been made in the agreement. In consequence of German fears Stanley started from the Congo side and the two Governments arrived at an understanding (July 1887) by which Germany was given a free hand for expansion south of the Victoria Nyanza and would be free from interference from Great Britain who would be confined in her expansion westward to territories north of the line agreed to in the previous November.

In July 1888 was formed in Germany the association which had for its ostensible object the fitting out of a German expedition for the relief of Emin Pasha. The real object, thus disguised, was to annex a chain of territories behind the

roughly defined British sphere and thus establish a link between German East Africa and Emin's Sudanese province of Equatoria. Although not officially sanctioned by the German Government the expedition was in touch with officials in German East Africa, and in Germany nothing was done to prevent its setting out. Dr. Karl Peters was put in command and eventually after difficulties with the officials of both Governments he landed in Witu just outside and to the north of the British sphere. Without delay he began his march into the interior following the course of the Tana river.

Meanwhile the I.B.E.A. had not been idle. In July 1888 the British agent and consul-general at Zanzibar had by means of a letter to Mwanga endeavoured to prepare the way for British commercial enterprise in Uganda, but the *coup d'état* of October 1888 by which the Arab interest became predominant, effectually defeated the attempt. In the early part of 1889 the I.B.E.A. had dispatched to the interior a considerable caravan under Mr. F. J. Jackson who was instructed to explore the country and make treaties with the chiefs within the British sphere, but on account of the unsettled state of parties there to avoid Buganda. Unconsciously Great Britain had entered into the race for Buganda. That it was a race became more apparent when, in March 1889, Emin, who had reached the coast, was appointed by the German Government to the command of a large expedition directed towards the south of the Victoria Nyanza, for which objective he soon set out. Pressure was now brought by the British Foreign Office to bear on the I.B.E.A. with a view to anticipating the Germans, a duty which, with no prospect of material advantage, the Company nevertheless undertook. Captain F. D. Lugard was the leader selected for this purpose, but as some time had to elapse before he could organize his caravan, the fate of British interests depended on the movements of Jackson who was already on his way to the lake but with instructions to avoid Buganda. He reached the lake at Mumias on November 7. Here he found awaiting

him Mwanga's letter dated June 1889 inviting his co-operation against the Mohammedans and promising, in return, ivory and the right to trade in Buganda. Jackson in view of his instructions proceeded warily and asked for information as to the situation in Buganda. On December 7 messengers returned with the news that the Christians had entered Mengo but were in imminent danger of attack. Letters from the Protestant missionaries and the Buganda chiefs contained urgent appeals for assistance, but Mwanga's letter, written by Lourdel, was ambiguous on the subject of a treaty between Mwanga and the Company. At this moment Lourdel and his colleagues were in hopes that a ruling could be obtained in Europe for the neutralization of Buganda (Cardinal Lavigerie was said to be agitating to this effect at the Brussels Conference). In last resort only were they prepared to fall back on a Power with which the cause of their religious rivals, the Protestants, was identified. Jackson therefore, after careful consideration, contented himself with the dispatch of a flag to Mwanga and a vague promise of future help; three days later his caravan started for the north to explore the country round Lake Rudolf. Shortly after he had gone further letters arrived at Mumias from Mwanga, who now frankly accepted the protection of the Company. Lourdel also wrote to implore Jackson's aid. The reason for the change in tone was the news of the defeat (November 22) of the Christian army and the flight of the king and the missionaries to Bulinguwe.

These letters lay unopened until the dramatic appearance on February 2, 1890, of Dr. Peters and his following. Peters had at an early stage crossed into the British sphere and throughout his journey along the right bank of the Tana had treated the natives and the Company's interests in a very high-handed fashion. On his arrival at Mumias he opened Jackson's correspondence, and a few days later a letter from Stanley fell into his hands from which he learned, if he had ever doubted it, that it was futile to pursue the ostensible object of his expedition. In view, therefore, of the urgent

appeals addressed by Mwanga to Jackson he resolved on a little filibustering on German account. In his own words Uganda 'the prize of the contest was still there and would fall to the lot of the boldest'. By February 25 he had arrived at Mengo.

Only a fortnight previously the Christian army had defeated and driven the Mohammedans from the capital whither Mwanga and the missionaries had now returned. Dissension in the Christian camp had for some time been marked. Two political parties had formed themselves round the rival missions and of these the Catholic party which, through Lourdel, had the ear of the *Kabaka* was probably slightly stronger or likely to become so in view of the prestige lent to Catholic propaganda by Mwanga's connexion with the party. Of this tendency the Protestants were naturally jealous and before a united front could be presented to the common Mohammedan enemy, a compact, drawn up by the missionaries, was made between the two parties. In this agreement it was stipulated that in event of victory no one party should enjoy a preponderance of political power, but that offices and estates should be shared out equally between the two parties, a change of religion on the part of an office holder involving the loss of his position and property.

The leaders of the two parties, whether they wished it or not, were the European missionaries, who had strong but widely divergent views as to the future of the country. The Protestants hoped for British interference (Mackay who died just about this time at the south end of the lake, had entertained ambitious ideas on this subject); the French priests on the other hand wished to get the country neutralized, and the natives, having been furnished with supplies and ammunition by the impartial Stokes, left to decide their own political future, which, the priests were confident, would result in the ascendancy of the Catholic party. For the purposes of this design the advent of Peters was most opportune. Arguing that British assistance had been demanded and refused (besides the appeal to Jackson messengers had

been sent to Stanley when he was with Emin on his way to the coast, but he had declined to interfere), Lourdel lent his support to Peters's treaty in which Mwanga promised to accept for his country a neutral status similar to that defined in the Berlin (Congo) Act of February 1885, and granted access to his country and freedom of trade to all Europeans, but made special mention of Germans and his friendship for the German Emperor. For some time the Protestant missionaries and the Protestant chiefs, led by Apolo Kagwa the *Katikiro*, considering Buganda by the acceptance of Jackson's flag a British protectorate, refused to sign, and civil war was imminent. Eventually the Protestant chiefs, on the advice of their missionaries, attached their signatures. News of the approach of Jackson who had returned to Mumias and been advised of Peters's proceedings, caused the latter to expedite his departure for the south end of the lake. This occurred towards the end of March. When Jackson at last, on April 14, arrived at Mengo he found Mwanga and the Catholics opposed to his treaty, which was as strongly supported by the Protestants. As no headway could be made without plunging the country into a conflict, Jackson left his assistant Gedge in charge in Buganda until information could be obtained at the coast determining to which European power the country was to belong. Some time later, in October, while on a voyage to the south end of the lake, Gedge was informed by Emin Pasha, who had recently arrived, prepared to make use of Peters's treaty, that, in accordance with the terms of the Anglo-German Agreement, concluded by the two powers in Europe on July 1, 1890, Uganda was to be British.

By this agreement the line of demarcation between the two spheres of influence was continued from the point on the eastern shore of Lake Victoria Nyanza, where it had stopped in accordance with the treaty of 1886 along the first parallel of south latitude, across the lake and as far as the frontier of the Congo Free State. The region bounded on the south by this line, in the north by the Juba river, Abyssinia and the

Egyptian Sudan, and on the west by the Congo Free State was reserved to Great Britain.

The I.B.E.A.—Captain F. D. Lugard armed with a copy of this Agreement was now instructed to proceed as speedily as possible to Uganda to administer the country on behalf of the I.B.E.A. On December 13, 1890, without waiting for Mwanga's permission, he crossed the Nile and on the 18th encamped at Mengo on Kampala hill. His instructions were on arrival to guarantee peace in Uganda, gradually to obtain control over all white affairs in the country, and while assuring religious freedom for all parties, in last resort 'to consolidate' the Protestant party. To achieve these ends Lugard had at his disposal a force consisting of two Europeans, De Winton and Grant, Dualla, a Mohammedan Somali who acted as interpreter, 50 Sudanese soldiers, about 250 armed Swahili porters, and a worn-out maxim. As the Swahilis could not be permanently retained Lugard, even if he desired it, was not able to assume at once the rôle of an independent authority. Nor was the situation substantially improved by the arrival six weeks later of Captain Williams, R.E., with 50 Sudanese, 100 Swahilis, and a maxim. Lugard was, however, disgusted to discover that he was regarded by the Catholic faction as a Protestant partisan and as such adopted by the Protestant party. The *Kabaka* who still feared retribution for Hannington's murder was confirmed in his reliance on the Catholics, who professed to be champions of Buganda's independence. Only the ever present menace of Mohammedanism kept the two factions from war.

The first trouble arose over Mwanga's unwillingness to sign a treaty which Lugard had first carefully explained to the missionaries of both denominations. Mwanga was asked to accept the protection of the Company to the exclusion of all other foreign political influence and not to grant concessions to Europeans without the consent of the Company's representative under whose control Europeans in Buganda were to be placed. The Company's representative or resident was to supervise the collection of revenue and its application

to the three purposes of the maintenance of royal state and public salaries, public works, and to the maintenance of an army organized by the Company's officers. The Company was to furnish, for administrative purposes, officials, whose expenses would be paid out of the public revenues. Offices of state were to be filled without regard to creed. Slave trading and the import of commodities banned by international agreement were to be prohibited. This clause, in view of the approach of Stokes with ammunition, was important. Otherwise trade was to be free to the traders of all nations. Liberty to teach religion was to be granted to missionaries of all denominations. This treaty was at first strongly opposed by Mwanga and the Catholic chiefs and as strongly supported by the Protestants. However, after the Catholics had obtained a special guarantee of religious freedom and a provision, contained in a codicil, making the treaty subject to any arrangements made between interested powers in Europe, Mwanga attached his signature. The treaty subject to the codicil was to be valid for two years and was considered as binding the states tributary to Buganda.

The main political problem confronting Lugard and his colleagues was the state of parties in Buganda.

In the practical questions relating to the division of offices of state and estates, Lugard had at first not a sufficient force at his command to do more than act as a mediator between the rival factions and as an adviser to Mwanga. His policy was to maintain a political equilibrium as it had been arranged by the chiefs themselves in the compact of 1889. He endeavoured to unite the two parties by a joint expedition in May 1891, against the common Mohammedan enemy, and he induced Mwanga to promulgate two decrees prohibiting eviction from estates on religious grounds, and enforcing the obedience of tenants to their feudal superiors without respect to creed. To strengthen his position at Kampala he made an expedition to Kavallis on the western shore of Lake Albert, where he was able to enlist a large force of Sudanese soldiers, who had with their commander, Selim Bey, been abandoned

by Emin Pasha, the governor of the Sudanese province of Equatoria. A company comprising 600 soldiers, with women, children, and slaves, about 8,000 in all, were brought into Uganda. The unenlisted soldiers were left to garrison the forts in Toro and Bunyoro, while the remainder accompanied Lugard to Mengo.

Meanwhile, Williams had with difficulty, with only a small force at his disposal, preserved peace at the capital, although in the outlying districts there had been fighting between the two factions. On the arrival of Lugard at the end of 1891, efforts were made to induce Mwanga to accept the Company's flag. But the political situation had become very acute. The Catholics, encouraged by rumours of the approaching evacuation of Uganda by the Company, were preparing for war, and Mwanga, who cared for nothing but his own safety and comfort, was still inclined to rely upon the Catholic party as the chief support of his dynasty against foreign aggression. The murder of a Protestant and the *Kabaka's* refusal to do justice precipitated a conflict in which the Protestants, with the aid of the Company's Sudanese, were victorious (January 24, 1892). In this fighting the Catholic church at Mengo was destroyed and several priests were temporarily in danger, although Lugard had previously offered them the protection of the fort at Kampala. Mwanga fled to Bulungugwe, an island in the lake where he was subsequently joined by Hirth the Catholic bishop. The latter had promised to persuade Mwanga to return, but fell in with the plan of Mwanga and the Catholic chief to emigrate to Buddu a Protestant province adjoining the German sphere where it was intended to dispossess the Protestant land-holders. This plan nearly failed as a result of an attack on Bulungugwe made by the Protestants supported by Sudanese under Williams. The latter also overran the Sese Island and secured command of the lake. A general emigration of Catholics from all parts of Buganda to Buddu began, and the Buddu Protestants and a Sudanese garrison on the lake shore made their way with difficulty to Mengo.

Negotiations were now opened by Lugard with a view to inducing Mwanga to return, and after Lugard had threatened to set up Mbogo the chief of the Mohammedan Boganda in his place, the *Kabaka* succeeded in escaping from the priests and the extremist Catholic chiefs and arrived at Kampala at the end of March. Lugard now treated with each faction separately. The Catholic chiefs signed a convention by which they were confined to Buddu and acknowledged the sovereignty of Mwanga. The latter also signed a treaty much to the same effect as Lugard's first treaty, but the Company was now for the first time able to exercise its powers fully. The Company's flag floated over the *Kabaka's* enclosure and British influence was an established fact.

This settlement did not close the politico-religious question and outstanding problems had to be dealt with by the administration which succeeded that of the Company. In the meantime, Captain Macdonald, R.E., then on survey work in East Africa, was commissioned to inquire into the cause of the conflict between the two factions. His report said to have been adverse to Lugard was set aside by the British government, which, however, acceded to the demand for compensation made through the French Government, on the part of the French priests.

Lugard also effected a temporary settlement with the Mohammedan Buganda. After their defeat in May 1891 and the subsequent establishment of garrisons in their rear, the Mohammedans had remained quiet. In January 1892 they were approached by Lugard with a view to the installation of Mbogo their chief as *Kabaka* of Buganda, but through the timely surrender of Mwanga this was unnecessary. Lugard, therefore, invited them to return to Buganda where he allotted them estates in proportion to their numbers. This was carried out largely through the influence possessed by the Sudanese commandant Selim Bey over his co-religionists. Mbogo was given up and proved ever afterwards a loyal supporter of the British administration. The other chiefs, however, were not so docile and after Lugard's departure

gave trouble. They had led an unsettled life for several years and, finding few peasant cultivators on their estates took to raiding in adjoining Christian territory. Towards the end of 1892 Williams sent them an ultimatum and they were induced through the mediation of Mbogo and Selim Bey to submit at the eleventh hour. Their demand for extra territories was reserved for the consideration of the special commissioner who was then on his way to Uganda.

During the period of his administration Lugard entered into relations with several other chiefs within the sphere allotted to Great Britain. Treaties were made with Kasagama of Toro, who had been driven from his kingdom by Kabarega of Bunyoro, and with the chiefs of Ankole and Kavallis. In the case of Toro definite economic resources, ivory, and the salt of Salt Lake became the monopoly of the Company, and the allied chiefs formed a ring round the hostile Bunyoro kingdom, whose chief was effectually shut off from the south, whence he formerly procured his ammunition. To safeguard the line of communications between Toro and the Buganda capital four forts were built, two between Toro and Bunyoro and two in southern Bunyoro. In these garrisons of Emin's Sudanese were installed with their native officers, under the general supervision of a Company official. No attempt was made to administer the territory to the west of Lake Albert, and arrangements were subsequently made between the I.B.E.A. and the Congo Free State, by which the latter were permitted temporarily to occupy the country. During the Company's administration Bunyoro maintained its independence, although it is probable that in May 1891, after the defeat of the Mohammedan rebels, their ally, Kabarega, might have been reduced, if the Buganda chiefs had not, to Lugard's disgust, broken off the campaign. The natives of the islands of Buvuma, in Lake Victoria, gave trouble after Lugard had left, but Williams, who was then in charge of the Company's interests in Uganda successfully reduced them to submission, and secured their friendship by his humane treatment of prisoners and by guaranteeing their independence of the

Kabaka of Buganda. In Busoga, also, where the Company had to deal not with one paramount chief but with the heads of numerous small clans, Williams succeeded in establishing order and assessing the tribute due to the Company.

Portal's Mission.—Lugard left Uganda in June 1892. For some time previously the Company directors had thought seriously of evacuating Uganda and as early as December 1891 Lugard had received instructions to this effect. These were, however, countermanded. The reason for this action was expense. It was estimated that out of an annual expenditure of £100,000 the Company had to devote £30,000 to £40,000 to the upkeep of its establishment in Uganda. It was only by subscriptions raised largely through the agency of the Church Missionary Society that the directors were able to consent to postponing the evacuation until December 31, 1892. As this time approached the Company warned the Government of its intention. In September 1892 Lord Salisbury's Government, which had taken no steps to avert the evacuation, was succeeded by an administration under Lord Rosebery. Though the new Government contained several of those politicians who had opposed State co-operation in the building of a railway from the coast to Lake Victoria, a widespread public opinion induced them to take action before it was too late. The principle of evacuation by the Company was accepted, but the Government undertook to bear the expense of a postponement until March 31, 1893. On December 10 instructions were issued to Sir Gerald Portal, the British agent and consul-general at Zanzibar to proceed as special commissioner to Uganda 'to frame a report as expeditiously as may be, on the means of dealing with the country whether through Zanzibar or otherwise'. Portal arrived in Uganda on March 17, 1893, and on April 1 the Company's flag was hauled down and replaced by the Union Jack.

Before leaving Uganda, at the end of May, Portal made a provisional agreement with Mwanga, which, subject to ratification, gave Great Britain a considerable degree of

control over the affairs of the Buganda kingdom. In this agreement, dated May 29, 1893, Mwanga declared that he sought the protection of Great Britain to the exclusion of all other foreign influence. The foreign relations of Buganda, and such important matters of domestic politics as appointments to public offices, internal taxation, and the distribution of land amongst the two factions now became subject to the control of the British representative. Customs dues were to be levied and appropriated by the British Government. In the sphere of justice the British representative was to exercise the usual consular jurisdiction in all cases involving Europeans and could review the native administration of justice. Slave trading was to be prohibited and measures given effect for the abolition of the domestic institution of slavery.

In his report, dated November 1, 1893, he rejected the solution of the problem afforded by evacuation pure and simple on various grounds. He contended that H.M. Government was morally bound by the treaties made by the Company with native chiefs; that in event of evacuation the Protestant party would suffer annihilation at the hands of their opponents; that both would be menaced by the forces of Islam to the south and north; that the Sudanese soldiery could not be left without control; finally, that a country commanding the headwaters of the Nile could not be left open to the inevitable inroad of some other European power. After stating his reasons for rejecting various methods of governing the country, he proposed that, on condition of the revocation of the Company's charter, Uganda should be ruled by a commissioner assisted by a staff of a dozen British officers with powers very similar to those conferred by the provisional treaty with Mwanga. The suggested government was not to have trading functions, and a condition which he considered indispensable to the retention of the country was the building of a railway to facilitate transport from the coast to Lake Victoria. Appended to his report were appeals by the bishops of the two denominations against evacuation.

Portal's agreement with Mwanga was ratified, and on

August 27, 1894, Uganda was declared a British Protectorate. The protection thus afforded only applied to the kingdom of Buganda ; relations with the surrounding countries were not to go beyond agreements maintaining an alliance with the chiefs, arrangements for the suppression of the slave trade, and the furtherance of commerce. Military operations in these countries, especially in Bunyoro, were to be restricted to measures necessary for the defence of Buganda. A new treaty was made with Mwanga which abrogated former agreements ; it was merely a repetition of the terms contained in Portal's agreement. Earlier in the year treaties had been made with the chiefs of Toro, Ankole, Kavallis, Kaswa, and the Sheikh of Wadelai. The form of these agreements was stereotyped, and consisted of three articles providing for peace between the contracting parties, for the access of British subjects and their permission to engage in trade, and for the exclusion of all other political influences.

The Politico-Religious Question.—During his stay in Uganda Portal had tried his hand at settling the various questions which then agitated the politics of the country. In response to the demand for more estates made by the Catholic faction, Portal, after inducing the heads of the rival missions to come to an agreement on this point, made several concessions to the Catholics. As a result of this conference it was agreed also that the principal offices of State should be duplicated, and this arrangement subsisted until Sir H. H. Johnston's mission of 1900. The politico-religious problem cropped up in a less acute form during Colonel Colville's administration, which began at the end of 1893, and some progress towards its solution was made by two proclamations, to much the same effect as those promulgated at the instigation of Lugard, which secured tenants against eviction for religious party reasons, and enforced the performance of duties owed to a feudal superior irrespective of his religious denomination. The Catholics still endeavoured to achieve political ascendancy, through Mwanga, who showed signs of reverting to Catholicism, and his young nephews and heirs who were in the

possession of one of their priests in German territory. Mwanga, however, was induced to adhere to his nominal Protestantism, and after some correspondence the young princes were given up, though not before Colvile had excluded them from the succession.

A very important step towards the settlement of this question was the Pope's appointment of an English Roman Catholic bishop to a diocese comprising the eastern provinces of Uganda, which were thus formally thrown open to Catholic missionary enterprise. Bishop Hanlon, of Cardinal Vaughan's Mill Hill Mission, was the person appointed, and he reached Uganda in 1895. The verbal agreement made between the heads of the two missions in 1893, whereby the missionary effort of the two denominations was confined to separate spheres, was formally abrogated.

The Mohammedan Revolt.—Portal was not successful in dealing with the Mohammedan party. To this party he was prepared to make small concessions in the matter of estates, although they already had more land than their numbers warranted. Mbogo had ceased to be more than the nominal leader of the party, which was now led by a young and daring chief, by name, Juma. But the attitude of the party was so rebellious that Portal declined to grant the concessions. The danger from the Mohammedan Baganda became more formidable in view of the growing discontent among the Sudanese soldiery, a feeling shared by their leader Selim Bey. The Sudanese in the frontier forts had been accused of oppressing the inhabitants of the neighbouring country side, and two of the garrisons had been withdrawn into Buganda. Selim himself had been giving trouble. He had been disowned by the Khedive for his conduct in Equatoria, and now, instead of being treated as formerly by Lugard and Williams as a coadjutor in their dealings with the Mohammedan Baganda, he was regarded as a subordinate. His interference on behalf of the Mohammedans was, therefore, resented by the British authorities. On the departure of Portal at the end of May 1893, the Mohammedan Baganda, encouraged by the renewed

activity of Kabarega, the promise of assistance from the Manyema Arabs in the Congo, together with the assurance of Selim Bey's support, broke out into open revolt. Macdonald, who was now acting-commissioner, acted boldly. Mbogo, Juma, and Selim Bey were arrested, the Sudanese at Kampala disarmed, and the Mohammedan army in the field was thoroughly beaten and dispersed. Selim was tried by court-martial and found guilty of 'mutinous conduct'.

Those Mohammedans who submitted were allowed to return to their province, and the party was never afterwards capable of serious trouble, although a few of its members were always to be found in the ranks of the other enemies of British influence in Uganda.

The Bunyoro War.—In October 1893 Macdonald withdrew the Toro garrisons to provide himself with a striking force against Kabarega of Bunyoro, against whom, it was clear, a campaign would soon be necessary. This monarch had been hostile to Europeans from the time that the white emissaries of the Egyptian Government had made attempts to annex his country. In 1872 a force under Sir Samuel Baker, which had entered Bunyoro to enforce Egyptian pretensions was forced to retire on Gondokoro; but three years later the northern districts of Bunyoro were occupied by Gordon's troops. In 1878 these were withdrawn. In 1886 Emin Pasha, isolated in the Sudanese province of Equatoria, and anxious about his communications with the East coast, sent Casati to maintain friendly relations with Kabarega. Here he remained until January 1888 when the news of Stanley's approach aroused Kabarega's suspicions and Casati was driven out. Meanwhile Kabarega had been engaged intermittently in wars with the Baganda who sent their armies to the assistance of pretenders to the Bunyoro throne; the refugee princes from Toro also found asylum at Mengo. In these Kabarega was generally worsted and some authorities state that he became a tributary of Buganda. During Mwanga's reign, however, he seems to have been able to re-establish his independence and become master of

Bunyoro, Toro, Busongora, the tribes to the north and east of the Victoria Nile, and to the west of Lake Albert. An opportunity for revenging himself on Buganda occurred on the outbreak of civil war in that country, when Kabarega sent musketeers and spearmen to help the Mohammedans who on their defeat found a refuge in his country. On the eve of Lugard's expedition against the Mohammedans in May 1891, Kabarega made an attempt to come to terms with Mwanga, but his proposals were deemed to be insincere, and it was found that he had sent a contingent of over 1,000 musketeers to assist the rebels. The Bunyoro monarch was further antagonized by the commercial policy of the I.B.E.A. Lugard found Buganda devastated by war and he turned his attention to the Salt Lake in Busongora and the ivory regions of Toro, both of which places contributed to the revenues of Kabarega. As Kabarega's previous attitude precluded any peaceful arrangement Lugard reinstated the exiled Kasagama with whom he arranged for a monopoly of ivory, and built the forts which shut off Kabarega from the Toro and southern Bunyoro. Although the Bunyoro king made tentative proposals of peace after the defeat of the Catholic faction in Buganda, Lugard considered that no satisfactory settlement could be reached with Bunyoro except by force of arms. This view was confirmed by the defiant reply sent by Kabarega in response to a demand for tribute made by Williams. When the northern forts were abandoned in 1893 Kabarega returned to the offensive, and, though eventually beaten off, succeeded in interrupting communications between Buganda and Toro. A peaceful settlement being now out of the question, Macdonald resolved on war, but before his preparations were completed Colville arrived and made plans for a campaign on a more extensive scale.

Hostilities were begun by Kabarega himself, and early in 1894 a force consisting of Sudanese, Swahilis, and a large Baganda army invaded Bunyoro. In the subsequent fighting which lasted for about eighteen months Kabarega was several times heavily defeated, driven from his capital, his

army dispersed, and half his kingdom annexed. He, however, escaped capture. In the course of this campaign British expeditions established posts on the western shore of Lake Albert and at Wadelai on the Nile. These places, on the leasing by the British Government to the Congo Free State of the Lado Enclave, had to be evacuated. The annexation of the remainder of the British sphere as it then existed was completed in July 1896, when the whole of Bunyoro and the territories to the west of it and to the west of Buganda were included in the Uganda Protectorate.

Sudanese Mutiny.—The short spell of peace enjoyed by the Protectorate after the heavy defeat of Kabarega in 1895 was broken by the sudden flight of Mwanga in June 1897. His acquiescence in British suzerainty had always been reluctant and he was probably concerned in a conspiracy for which two chiefs of different religious factions, but belonging in fact to the party opposed to European rule, had already been apprehended. Mwanga raised Buddu province where nearly all the chiefs flocked to his support. A force under Colonel Ternan, acting-commissioner in the absence of Berkeley, completely defeated the rebels, and, later, a further concentration was dispersed. Mwanga fled to German territory while his surviving followers escaped into Ankole. Meanwhile Mwanga's infant son Chua was proclaimed, August 14, 1897, *Kabaka* of Buganda, and during his minority regents were appointed to govern in his name. New chiefs, all of the Catholic faction, were appointed in Buddu.

In this crisis, as in all others, the chief instrument for the maintenance of British power in Uganda had been the Sudanese soldiery, the bulk of which had been enlisted by Lugard. They numbered in 1897 about 1,200. Most of these troops had been constantly employed on garrison duty and the picked men in a succession of campaigns. Their pay was extremely small, being less than that of a porter, and both pay and clothing were often in arrears. A feeling of discontent became rife among men of the field force who, besides the other hardships, were of necessity separated for long

periods from their wives and families, and their grievances were aggravated by the fact that owing to the dearth of Arabic speaking officers they could not be adequately represented to the authorities. Their discontent came to a head when three companies which, after fighting against a tribe in the Nandi district, had been hurried across Uganda to suppress Mwanga's rebellion in Buddu, and were now called upon to retrace their steps by forced marches to form part of an expedition under Major Macdonald for exploration in East Africa. When they arrived at the rendezvous near Lake Baringo, British East Africa, it soon became apparent that they had no intention of proceeding in this further expedition. Macdonald and Jackson, the acting-commissioner, both made attempts to meet their demands but with no effect, and on September 23 the troops including the native officers and non-commissioned officers proceeded to open mutiny. After a collision with the garrison at Eldama Ravine the mutineers made for the Nile looting native villages and murdering their inhabitants. They captured the station at Lubwas and, on being attacked by Macdonald with a force of Baganda, murdered Thurston and two other whites. Their attempt to inveigle Mbogo, leader of the Mohammedan Baganda, did not succeed. From October 19 to January 9 a force of over 600 mutineers was besieged in Lubwas by an army consisting chiefly of Baganda. Although the Kampala Sudanese had been disarmed there was the prospect of a calamity if the mutineers should be able to effect a junction with the garrisons in Bunyoro. This danger became imminent when in January 1898 the mutineers succeeded in making their escape from Lubwas and crossed the Nile on their way to Mruli. Further complications arose when Mwanga escaped from German territory and appeared again in Buddu, where fortunately the Sudanese garrison had been disarmed; in Bunyoro Kabarega was once again in the field. The situation remained critical until a force of Indians, Swahilis, and regulars inflicted on February 24 a decisive defeat on the mutineers who were holding a position on an island in Lake Kioga. The remnant

were driven eastward into Bukedi and meanwhile the garrisons in Bunyoro were successfully disarmed. Indian troops in May inflicted a further defeat on the survivors, and although the trouble was by no means over the crisis was past. The British losses up to this time had been heavy, and included four British officers killed.

Meanwhile the surviving Buddu rebels under Mujasi Gabriel, who had been defeated in Ankole and southern Bunyoro, had joined hands with Kabarega and the remnant of the mutineers ; this body was further reinforced by several hundred Baganda Mohammedans. Guerilla warfare in the country between northern Bunyoro and Bukedi continued until late in 1899, when Mwanga and Kabarega were both captured and deported. The surviving mutineers held out in the Lango country until they were all killed or captured by a British expedition under Major Delmé Radcliffe in April 1901. As a result of the mutiny the Protectorate troops were reorganized ; the complement of Sudanese was reduced and those of the Swahilis and Somalis were raised. Indian troops had been drawn on to suppress the mutiny and a battalion was now raised in India for service in Uganda.

Johnston's Special Commission. Mr. Berkeley, who as the first regular commissioner had arrived in June 1895, left the country towards the end of 1898, and in December 1899 Sir H. H. Johnston arrived at the head of a special commission. The purposes of this commission were to investigate the resources of the Protectorate, to evolve a permanent system of administration, and to report as to what extent the cost of administration could be met by the local revenue. It was proposed that for the purposes of British supervision, the Protectorate should be divided into six provinces of which the kingdom of Buganda was the most important. With the *Kabaka* and chiefs of Buganda was made the Uganda Agreement of March 10, 1900, in which were provisions relating to native administration, taxation, and ownership of land. It was provided that the kingdom of Buganda now including certain districts south of the Kafu river and between Lake

Kioga and Lake Albert, originally part of Bunyoro, should constitute a province of the Protectorate and subject to the agreement be amenable to the general laws governing the Protectorate as a whole. The revenue of the kingdom was to be merged in the general revenue, but out of this certain fixed sums were set aside as salaries for the *Kabaka* and the royal household, the ministers of state, and the local chiefs. The supreme executive power in native affairs was to belong to the *Kabaka* and his three chief ministers who during his minority acted as regents.

Legislative power belonged to the *Lukiko* or native council composed of the twenty *saza* or county chiefs or their representatives and sixty nominees of the *Kabaka*. Enactments made by virtue of this power were to be subject to the ratification of the British representative. The *Lukiko* also exercised judicial powers over the Baganda and acted as a court of appeal for the lower native courts. In serious cases there was to be an appeal to the principal court of appeal.

For purposes of local administration the kingdom was to be divided in twenty counties, over each of which was set a chief on whom devolved the duty of assessment and collection of taxes, the upkeep of public works, the administration of justice in the local courts, and the maintenance of order. For revenue a hut tax of 4s. and a gun tax of 4s. were imposed; the imposition of other taxes was forbidden.

The area of the kingdom was estimated at 19,600 square miles, and of this 1,500 square miles of forest and 9,000 square miles of waste and uncultivated land became the property of the British Crown. Most of the remainder was allotted to the *Kabaka* and his relations, the ministers of state, the local chiefs, and private landowners as private property. Certain estates were attached to the offices of the ministers and the *saza* chiefs.

Treaties on similar lines were made with Ankole and Toro.

Recent History. The results of Sir H. H. Johnston's special commission were embodied in the Uganda Order in Council 1902 which laid down the basis of the Protectorate's constitu-

tion. This enactment set up legislative, administrative, and judicial machinery, and applied to Uganda certain bodies of law and special enactments. It enumerated also the administrative divisions of the Uganda Protectorate and at that time these were as follows: the central province comprising the districts of Elgon, Karamajo, Busoga, Bukedi, and Lolor; the Rudolf province comprising the districts of Turkwel, Turkana, and Dabossa; the Nile province comprising the districts of Dadinga, Bari, and Shuli; the western province of which the districts were Bunyoro, Toro, and Ankole; and the kingdom of Uganda and the islands appertaining thereto. A further province, the eastern, comprising the districts of Suk, Baringo, Nandi, and Mau, was added. In 1903 the whole of the last-named province and part of the central was transferred to British East Africa.

In April 1907 by a proclamation of Sir H. H. Bell the administrative divisions were reorganized as follows: there were now five provinces; the eastern comprising the districts of Busoga, Karamajo, Bukedi, and Lolor; the western province with the districts coinciding with the kingdoms of Toro and Ankole; the Rudolf province with the districts of Turkwel, Turkana, Dobassa; the northern province of which the districts were Bunyoro, Acholi, Latuka, Bari, and Lango; and the kingdom of Buganda comprising the districts of Mengo, Entebbe, Masaka, and Kakumiro.

In 1908 the kingdom of Uganda became known officially as Buganda; in the following year the Kakumiro district was renamed Mubendi.

The Lango district in 1909 became a subdivision of Bunyoro and in 1911 was transferred to the eastern province. In 1912 the districts of this province were reorganized so as to consist of the following: Bunyoro, Gulu, Chua, Nimule, and Gondokoro. In 1914 owing to the readjustment of the northern frontier of the Protectorate, the districts of Nimule, Gondokoro, and parts of Chua were transferred to the Sudan. At the same time the new district of West Nile was created out of territory originally administered by the Sudanese officials.

Lango was transferred to this province in 1911, and in the following year the new district of Teso was created.

As a result of frontier readjustment the district of Kigezi was in 1913 added to this province.

(For list of provinces and districts as constituted at present see Government and Administration, p. 332.)

The period from 1902 onward to the present time the history of the Protectorate has been chiefly remarkable for rapid administrative and economic development. The most serious problem has been that of disease, namely sleeping-sickness, which broke out in 1901 and is said to have carried off 200,000 persons. The fertile districts along the shores of Lake Victoria and the islands in the lake have had to be completely evacuated. The old sources of political disturbance disappeared, and no new ones of any importance have opened up. From time to time it has been necessary, in the interests of the better administration of the country, to amend the agreements with the three native kingdoms of Buganda, Toro, and Ankole. In Buganda the chief of these new agreements were the Uganda (Poll Tax) Agreement 1904, which added a poll tax to the hut and gun taxes already paid; the Uganda (Judicial) Agreement 1905, which created courts subordinate to the *Lukiko* other than the *Abamasaza*; the Uganda Memorandum of Agreement (Forest) 1907, which defined the native rights in regard to forests; the Uganda (Payment of Chiefs) Agreement, which modified the arrangement relating to the salaries of native chiefs; the Uganda (Poll Tax) Agreement 1909, which abolished the Hut Tax of 1900 and the Poll Tax of 1904 and established a standard poll tax for every male native over the age of 18 years; the Buganda Agreement (Native Laws) 1910, which defined the *Kabaka's* legislative powers; the Buganda Agreement (Allotment and Survey) 1913, which explained the provisions of the original agreement with regard to the allotment of land and contained important provisions relating to land settlement; finally an agreement was signed by the *Kabaka* which made possible the amendment by proclamation issued in 1917

of the Courts Ordinance of 1911 ; this proclamation defined the powers of the Buganda native courts.

Daudi Chua, son of Mwanga, is still *Kabaka*, and his *Katikiro*, now Sir Apolo Kagwa, is the same man who, as leader of the Protestant party, supported the policy of Lugard.

Agreements providing for new regulations as to taxation and justice were made with Toro in 1910, 1912, and 1914. Kasagama is still the *Mukama*. In Ankole it was found necessary owing to the murder in 1905 of the acting provincial commissioner to suspend the original agreement ; but this was restored in 1912 and amended in 1914 for the purpose of altering the boundaries of the kingdom.

The extension of British administration to the outlying districts has not met with any serious resistance on the part of the natives. The pioneer work in the eastern province was accomplished by trained Buganda agents whom on occasion it has been necessary to support with armed force. In the Bukedi district, which was first opened up during the Sudanese Mutiny, punitive expeditions against various clans, the Bagishu, chiefly, were necessary in 1904, 1907, 1909, and 1911. The only trouble in the Lango district arose in consequence of the murder of a Baganda agent in 1903. No attempt to administer the district was made until 1907, from which time the work has been pushed steadily forward without any serious opposition.

That part of the Kigezi district which had originally formed part of the Belgian Congo was handed over to the British authorities in May 1911 and in January of the following year a tract of country south of 1° south latitude was officially handed over by the Germans. Previous to the transfer it had been necessary in September 1911 to take action against a witch doctress of anti-European proclivities, Ramusa by name, and she was captured and deported. In April 1912 the Bakiga on the Uganda side of the frontier were relieved from the fear of raids of a Batwa chief resident in German territory by his capture by the German authorities. Towards

the end of 1912 a follower of Ramusa proved troublesome, but he was captured in January 1913.

During the war, trouble of a more serious nature has been given by the tribes in the Turkana country, which extends roughly from the Sudan frontier southwards along the west side of Lake Rudolf into British East Africa. At the end of 1914 these tribesmen raided the cattle of friendly natives and a joint patrol of Uganda police and Sudanese troops was sent against them near Pelegech mountain. They were taken by surprise and a quantity of stock was captured. Early in 1915 an expedition in greater strength inflicted heavy casualties on the paramount Turkana chief and captured an immense quantity of stock. In the early months of 1917 riflemen from the Laburr country, reinforced by armed parties of Abyssinians and Swahili, were responsible for a series of raids into the Suk and Karamojo districts, from which they carried off large numbers of cattle. Since that time the Turkana tribes residing in the Uganda Protectorate have been reduced or driven north into the Sudan, whence they were compelled to retire on the Abyssinian frontier. In the Sudan and in the Protectorates posts have been established to contain the raiders and the Abyssinian Government has been called upon to deal with the Abyssinian tribes which have taken part in the raiding operations.

Survey of Economic Development. The following statement indicates the financial progress of the Protectorate.

SURVEY OF ECONOMIC DEVELOPMENT

Remarks.

<i>Year.</i>	<i>Grant-in-Aid.</i> £	<i>Revenue.</i> £	<i>Expenditure.</i> £	<i>Remarks.</i>
1893-94	—	—	43,589	The administration of the Protectorate was taken over by the Government from the Imperial British East Africa Company from April 1, 1893. The expenditure for the first year was charged to the Special Missions Head of the Foreign Office Vote for Diplomatic and Consular Services. It included a sum of £5,605 paid by the Imperial British East Africa Company as a grant in-aid of expenditure for three months to March 31, 1893.
1894-95	95,000	7,577	63,937	This was the first year in which a separate grant-in-aid was voted for the Protectorate. The expenditure included a sum of £4,450 on account of vessels for Lake Victoria.
1895-96	49,000	6,248	61,387	The revenue in this and the previous year was chiefly obtained from the sale of ivory captured in expeditions. The expenditure in this year included £7,416 on account of the transport of vessels for Lake Victoria, and £9,184 on account of arms and ammunition for the troops. The construction of the Uganda Railway was begun during this year.
1896-97	49,000	11,182	67,377	The chief head of revenue this year was customs duties.
1897-98	89,000	10,116	100,972	The increase in expenditure in this year was caused partly by the measures taken to deal with the mutiny of three companies of Sudanese troops.
1898-99	339,000	13,541	491,901	The large increase in the expenditure was caused chiefly by the measures taken to deal with the mutiny. A regiment was brought over from India and the pay of the local troops was raised. In this year a sum of £18,002 was charged on account of the construction of a road between Naivasha and Lake Victoria, and a sum of £7,066 for a telegraph line from Kikuyu to the Eldoma Ravine.
1899-1900	397,000	47,629	296,226	The expenditure in connection with mutiny amounted in this year to £63,031.
1900-01	204,400	81,833	251,597	The increase in revenue was due chiefly to the introduction of a hut tax. The mutiny expenditure amounted to £31,946. Provision was made for a survey department.

SURVEY OF ECONOMIC DEVELOPMENT

Year.	Grant-in-Aid.	Revenue.	Expenditure	Remarks
	£	£	£	
1901-02	172,000	73,998	228,680	A regular police force was instituted and permanent public works begun.
1902-03	135,000	41,158	203,733	On the transference to British East Africa of the Eastern Province including the thickly populated Kavirondo country, a large amount of revenue from the hut tax was lost to the Uganda Protectorate. Expenditure was increased by a payment of £16,910 for the final transport and construction of the <i>William Mackinnon</i> , and another payment of £16,910 for an extension of the telegraph line from Eldoma Ravine to Uganda. Through bookings to the coast via the Uganda Railway and its steamer services began in April 1903.
1903-04	130,000	51,474	186,800	In this year a reduction in military expenditure was effected and that on public works considerably increased.
1904-05	139,850	59,707	173,038	The administration of the Protectorate was transferred from the Foreign Office to the Colonial Office from April 1, 1905.
1905-06	103,000	77,814	191,142	Expenditure on sleeping sickness began this year.
1906-07	112,000	96,772	191,502	Provision was made for a separate agricultural department to control cotton and other industries. Experiments in motor traction were begun.
1907-08	85,000	113,883	195,528	Owing to a severe famine in Busoga the revenue received a setback and there was considerable expenditure on relief measures. Other sums were spent on the cotton industry, transport facilities on Lake Kioga and Lake Albert, and for the inauguration of a Veterinary Department.
1908-09	95,000	102,572	256,337	A poll tax was substituted for the hut tax. The Protectorate received for the first time a contribution from the Protectorate of British East Africa on account of customs duties on Uganda Protectorate imports through Mombasa.
1909-10	103,262	165,145	240,140	A loan of £160,000 (afterwards increased to £170,000) from Imperial funds was made to the Protectorate this year for the construction of the Busoga Railway; the construction of this line was begun.
1910-11	96,000	191,094	252,374 } 23,782 }	<i>Loan</i>

1911-12	65,000	203,492	283,689	<i>Loan</i> . . . 98,486 <i>Loan.</i> Busoga Rly. . . 21,789 Eastern Province . . 3,944 Kampala— Port Bell Rly. . . 335 292,147	<p>Capital expenditure (part of a total grant of £34,519) was made on account of transport on Lake Kioga and also on motor transport to deal with the produce of the cotton industry. A sum of £5,850 was spent on the suppression of rinderpest. Further expenditure on Lake Kioga transport, and on motor transport. The Busoga Railway was opened on April 1, 1912. A loan of £125,000 from Imperial funds was sanctioned for the construction of a railway from Kampala to Port Bell and for the improvement of communications in the Eastern Province.</p> <p>A net profit was expected on the working of the Busoga Railway which this year had to meet its first charge on account of interest and sinking fund, but owing partly to a loss on the Lake Kioga Marine Service which was now amalgamated with the Busoga Railway, there was a loss of £4,008.</p>
1912-13	45,000	238,655	292,147	<i>Loan.</i> Busoga Rly. . . 21,789 Eastern Province . . 3,944 Kampala— Port Bell Rly. . . 335 292,147	<p>Loan expenditure this year includes an amount, £2,995, from the Imperial Loan (1915) of £329,000 granted for the improvement and extension of internal railway, steamer, telegraph, and road communications throughout the Protectorate. This advance is being made piecemeal and this year a sum of £5,160 was allotted.</p>
1913-14	35,000	256,559	289,213	<i>Loan.</i> Busoga Rly. . . 12,013 Kampala— Port Bell Rly. . . 14,954 Eastern Province . . 25,726 289,213	<p>The Protectorate was this year able to dispense with the grant-in-aid. The working of the Busoga Railway and Marine showed a loss after payment of interest and sinking fund charges of £7,442. Uganda's proportion of the import duties Carriage and Transit dues, collected by the East African Protectorate, was this year fixed at 25 per cent.</p>
1914-15	10,000	282,830	285,072	<i>Loan.</i> Busoga Rly. . . 5,120 Kampala— Port Bell . . . 14,901 Eastern Province . . 28,412 Imperial loan . . . 2,995 285,072	<p>This year there was a considerable increase in the contribution from the proceeds of import duties, &c. The loss on the Busoga Railway and Marine was £4,009.</p>
1915-16	—	287,025	289,308	<i>Loan.</i> Busoga Rly. . . 3,138 Kampala— Port Bell . . . 1,874 Eastern Province . . 13,371 Imperial Loan . . . 876 289,308	
1916-17	—	315,458	289,308	<i>Loan.</i> Busoga Rly. . . 1,779 Eastern Province . . 5,961 Imperial Loan . . . 523 289,308	

APPENDIX I

CLIMATE TABLES

SUMMARY

TABLE		PAGE
I.	Latitude, Longitude, and Altitude of Meteorological Stations and Period of Observations on which the Tables have been based	379
II.	Mean Temperature	380
III.	Mean Daily Minimum Temperature	380
IV.	Mean Daily Maximum Temperature	382
V.	Mean Monthly Minimum Temperature	382
VI.	Mean Monthly Maximum Temperature	384
VII.	Monthly Range of Temperature	384
VIII.	Absolute Minimum Temperature	386
IX.	Absolute Maximum Temperature	386
X.	Mean Monthly Rainfall	388
XI.	Maximum Rainfall in Month and Year	390
XII.	Minimum Rainfall in Month and Year	392
XIII.	Maximum Rainfall in 24 hrs.	392
XIV.	Mean Number of Raindays	394
XV.	Relative Humidity	394
XVI.	Mean Number of Days with Thunderstorms	396
XVII.	Cloud	396
XVIII.	Sunshine	398
XIX.	Wind Strength	398
XX.	Wind Direction. Percentage of Observations	400
XXI.	Seasonal Winds at Hours of Observation at	
	(a) Fort Portal	406
	(b) Mbarara	407
	(c) Entebbe	408
	(d) Bukoba	409
XXII.	Winds of Strength 4-12 (Beaufort Scale) at	
	(a) Fort Portal	410
	(b) Mbarara	413
	(c) Entebbe	417
	(d) Masaka	421

TABLE I

LATITUDE, LONGITUDE, AND ALTITUDE OF METEOROLOGICAL STATIONS AND PERIOD OF OBSERVATIONS FROM WHICH THE TABLES HAVE BEEN COMPILED

	<i>Latitude.</i>	<i>Longitude.</i>	<i>Altitude.</i>	<i>Period of observations.</i>
North Uganda :			Ft.	
Nimule	3° 39' N.	32° 10' E.	2,034	1904-13
Wadelai	2° 47' N.	31° 30' E.	2,296 (?)	1902-06
Gulu	2° 45' N.	32° 25' E.	—	1911-16
Koba	2° 19' N.	31° 29' E.	—	1907-10
Masindi	1° 40' N.	31° 50' E.	3,764	1906-16
West Uganda :				
<i>Butiaba</i>	1° 50' N.	31° 26' E.	2,025	1907-16
<i>Hoima</i>	1° 30' N.	31° 30' E.	3,801	1909-16
Fort Portal	0° 43' N.	30° 8' E.	5,299	1904-16
Mubendi	0° 30½' N.	31° 22½' E.	5,122	1909-16
Mbarara	0° 31' S.	30° 47' E.	4,500	1907-16
East Uganda :				
<i>Kumi</i>	1° 29' N.	33° 58' E.	—	1909-14
<i>Ngora</i>	1° 28' N.	33° 48' E.	—	1909-16
Mbale	1° 2' N.	34° 6' E.	—	1909-15
South Uganda (Victoria Nyanza District) :				
Jinja	0° 26' N.	33° 11' E.	3,722	1904-16
Kampala	0° 19' N.	32° 35' E.	3,905	1907-16
Entebbe	0° 4½' N.	32° 28½' E.	3,842	1896-1916
Masaka j	0° 21' S.	31° 47' E.	4,200	1904-16
^a Bukoba	1° 20' S.	31° 51' E.	(circa) 3,723	1893-1912

Names of rainfall stations are printed in italics.

TABLE II
MEAN TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule (Sudan) . . .	81·9	82·8	84·5	82·6	81·7	80·8
Wadelai (4-5 years) . . .	80·6	79·9	81·0	79·6	80·6	78·8
Gulu	76·9	76·8	76·0	75·4	73·2	72·3
Koba	78·9	82·0	83·0	79·6	79·0	78·6
Masindi	75·3	76·0	75·8	74·8	72·8	72·8
West Uganda :						
Fort Portal	68·4	68·8	69·7	69·6	69·2	67·8
Mubendi	71·8	72·1	71·6	71·8	71·7	72·0
Mbarara	67·2	68·0	68·5	67·0	66·0	65·7
East Uganda :						
Mbale	76·4	75·8	75·6	73·1	72·6	71·8
South Uganda (Victoria Nyanza District) :						
Jinja	73·7	73·4	73·2	73·3	73·2	71·9
Kampala	73·5	74·2	74·1	73·6	73·3	72·3
Entebbe	71·9	72·1	71·8	70·6	70·5	69·9
Masaka	69·8	70·0	69·8	69·2	68·2	68·1
Bukoba	69·4	69·8	70·5	69·8	69·3	69·1

TABLE III
MEAN DAILY MINIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule	67·4	69·6	72·4	71·0	71·6	71·1
Wadelai	66·0	66·7	69·2	69·0	69·2	66·7
Gulu	65·5	67·3	64·4	64·1	62·4	61·1
Koba	64·9	68·5	70·5	68·6	69·3	69·2
Masindi	63·1	63·8	63·5	63·3	62·8	62·7
West Uganda :						
Fort Portal	55·9	56·9	58·2	58·7	57·3	56·4
Mubendi	62·8	63·4	64·2	63·6	63·0	63·4
Mbarara	53·4	54·3	55·0	54·6	53·9	51·5
East Uganda :						
Mbale	63·5	63·4	64·4	62·8	62·3	62·3
South Uganda (Victoria Nyanza District) :						
Jinja	62·5	62·1	63·2	64·3	64·6	63·1
Kampala	63·5	64·3	65·6	64·7	64·0	62·6
Entebbe	63·8	63·9	64·4	63·8	64·0	63·1
Masaka	60·1	60·3	60·7	60·7	59·9	59·6
Bukoba	61·9	62·2	62·6	63·1	63·1	62·2

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	<i>Year.</i> ° F.	
79.0	77.2	79.2	80.1	80.9	80.9	80.9	North Uganda :
77.5	77.8	78.5	79.0	79.1	80.4	79.3	Nimule (Sudan).
71.4	73.0	73.9	74.4	74.0	74.1	74.0	Wadelai (4-5 years).
77.6	76.5	77.7	79.1	77.0	78.6	78.9	Gulu.
71.5	71.0	72.8	73.2	71.6	73.6	73.4	Koba.
							Masindi.
68.0	67.3	67.4	66.4	67.4	66.8	68.1	West Uganda :
71.6	71.6	71.2	71.2	70.7	70.5	71.5	Fort Portal.
66.1	67.0	65.8	65.8	64.9	65.3	66.4	Mubendi.
							Mbarara.
71.0	71.0	71.4	72.4	72.4	74.6	73.2	East Uganda :
							Mbale.
							South Uganda (Victoria
							Nyanza District) :
70.8	71.2	72.3	73.5	72.7	72.6	72.6	Jinja.
71.0	71.5	73.4	72.2	72.8	72.2	72.8	Kampala.
68.8	69.2	70.5	71.2	71.0	71.0	70.7	Entebbe.
68.2	68.6	68.8	69.4	68.7	68.1	68.9	Masaka.
68.2	68.0	69.3	69.3	69.3	68.9	69.2	Bukoba.

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	<i>Year.</i> ° F.	
68.2	66.4	67.6	68.7	69.4	68.7	69.3	North Uganda :
66.4	65.0	64.5	64.7	66.1	67.2	66.7	Nimule.
61.3	63.8	63.6	64.7	64.0	63.9	63.5	Wadelai.
66.4	66.1	67.2	67.3	63.9	64.8	67.2	Gulu.
61.7	61.5	62.4	61.9	60.0	61.9	62.3	Koba.
							Masindi.
57.7	57.4	56.4	56.0	57.0	54.9	56.9	West Uganda :
63.0	62.8	62.3	62.5	63.1	62.3	63.0	Fort Portal.
52.1	54.2	53.6	52.6	53.4	52.9	53.5	Mubendi.
							Mbarara.
61.4	60.9	61.2	61.9	62.4	63.0	62.4	East Uganda :
							Mbale.
							South Uganda (Victoria
							Nyanza District) :
61.6	61.7	62.0	63.7	62.8	62.8	62.9	Jinja.
61.3	62.4	63.7	62.0	64.9	62.8	63.5	Kampala.
61.5	61.3	62.1	62.5	62.8	63.0	63.0	Entebbe.
59.6	59.9	59.5	59.6	59.7	59.4	59.9	Masaka.
60.6	60.4	61.3	61.2	61.5	61.3	61.8	Bukoba.

TABLE IV

MEAN DAILY MAXIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule	96.4	96.1	96.6	94.2	91.8	90.6
Wadelai	95.2	93.1	92.7	90.3	92.0	90.9
Gulu	88.3	86.3	87.6	86.7	84.1	83.5
Koba	92.9	95.5	95.4	90.7	88.7	88.0
Masindi	87.5	88.3	88.2	85.4	82.7	83.0
West Uganda :						
Fort Portal	80.8	80.8	81.2	80.5	81.0	79.1
Mubendi	80.9	80.8	79.1	80.1	80.4	80.5
Mbarara	81.1	81.7	81.9	79.5	78.2	79.9
East Uganda :						
Mbale	89.2	88.1	86.7	83.4	83.0	81.4
South Uganda (Victoria Nyanza District) :						
Jinja	84.9	84.7	83.1	82.3	81.7	80.6
Kampala	83.6	84.2	82.6	82.5	82.6	82.0
Entebbe	80.0	80.2	79.2	77.3	76.9	76.7
Masaka	79.5	79.7	79.0	77.7	76.5	76.6
Bukoba	78.8	78.6	78.8	77.0	76.8	77.7

TABLE V

MEAN MONTHLY MINIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule	62.0	64.2	65.5	65.1	67.1	64.8
Wadelai (2½ years)	62.3	56.7	63.7	62.9	61.3	61.7
Gulu (2-5 years)	63.0	65.0	(64.0)	62.5	60.0	59.0
Koba (3-4 years)	61.0	64.3	66.3	64.7	66.0	66.0
Masindi	61.4	62.6	61.4	61.2	62.2	61.5
West Uganda :						
Fort Portal	50.2	50.9	52.5	53.7	51.3	52.1
Mbarara	48.8	49.0	50.3	51.2	50.0	49.0
East Uganda :						
Mbale	60.5	58.7	61.0	60.0	58.3	56.8
South Uganda (Victoria Nyanza District) :						
Jinja	58.8	58.9	59.6	61.3	61.6	60.2
Kampala	59.2	60.0	60.5	61.5	59.7	58.3
Entebbe	60.1	59.9	61.0	60.6	60.6	59.5
Masaka	58.0	58.1	58.8	58.1	58.1	57.8
Bukoba	57.7	58.5	60.1	60.1	60.6	59.4

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	<i>Year.</i> ° F.	
89.9	88.0	90.7	91.6	92.4	93.1	92.6	North Uganda :
88.6	90.6	92.5	93.2	92.0	93.6	92.0	Nimule.
81.6	82.2	84.3	84.1	84.4	84.3	84.5	Wadelai.
88.8	87.0	88.2	91.0	90.0	92.5	90.7	Gulu.
81.2	80.6	83.2	84.5	83.3	85.4	84.6	Koba.
							Masindi.
78.2	77.2	78.4	76.7	77.8	78.7	79.2	West Uganda :
80.3	80.4	80.2	80.0	78.3	78.7	80.0	Fort Portal.
80.1	79.7	78.0	79.0	76.4	77.8	79.4	Mubendi.
							Mbarara.
80.7	81.1	81.7	83.0	82.5	86.1	83.9	East Uganda :
							Mbale.
							South Uganda (Victoria Nyanza District) :
79.9	80.7	82.6	83.3	82.6	82.5	82.4	Jinja.
80.8	80.5	83.1	82.5	80.7	81.7	82.2	Kampala.
76.1	77.0	78.8	79.9	79.1	79.0	78.5	Entebbe.
76.7	77.2	78.0	79.1	77.7	76.8	77.9	Masaka.
77.4	77.0	78.8	79.5	79.0	78.3	78.1	Bukoba.

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
64.2	61.0	62.3	65.1	64.3	65.2	North Uganda :
53.5	60.5	59.5	54.7	45.5	60.0	Nimule.
57.0	61.0	62.0	63.0	58.6	62.0	Wadelai (2½ years).
63.5	63.5	64.0	64.3	60.0	61.0	Gulu (2-5 years).
60.8	61.0	61.0	61.0	59.1	61.5	Koba (3-4 years).
						Masindi.
52.0	50.9	52.2	49.9	52.1	50.1	West Uganda :
48.5	50.5	50.9	50.0	50.6	50.3	Fort Portal.
						Mbarara.
59.2	58.8	57.0	58.5	59.2	59.8	East Uganda :
						Mbale.
						South Uganda (Victoria Nyanza District) :
59.3	58.4	59.2	60.2	60.1	59.2	Jinja.
57.6	58.2	59.2	59.0	60.6	57.4	Kampala.
58.2	58.8	58.7	59.9	60.0	59.7	Entebbe.
57.0	56.7	56.9	56.5	56.9	57.0	Masaka.
59.2	57.0	57.2	58.6	58.6	59.4	Bukoba.

TABLE VI
MEAN MONTHLY MAXIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule	101·7	102·5	103·2	99·6	96·6	95·2
Wadelai (2½ years)	100·0	98·2	101·2	95·7	99·8	99·4
Gulu (2-5 years)	93·0	90·5	95·0	92·0	85·5	86·5
Koba (3-4 years)	98·0	102·0	104·0	99·0	93·0	93·0
Masindi	89·8	90·6	92·8	89·2	85·0	84·7
West Uganda :						
Fort Portal	84·7	85·0	85·5	84·6	84·1	82·8
Mbarara	86·0	87·3	87·2	84·0	81·3	84·0
East Uganda :						
Mbale	91·0	91·8	93·0	87·1	87·3	85·9
South Uganda (Victoria Nyanza District) :						
Jinja	89·3	90·9	90·1	86·3	85·6	85·1
Kampala	88·8	91·0	89·6	87·8	87·8	89·1
Entebbe	84·3	84·7	83·8	80·7	80·3	79·3
Masaka	83·5	84·8	84·4	81·9	80·1	79·7
Bukoba	84·6	83·1	82·8	81·5	81·0	82·0

TABLE VII
RANGE OF TEMPERATURE

(Mean Monthly Maximum less Mean Monthly Minimum)

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule	39·7	38·3	37·7	34·5	29·5	30·4
Wadelai (2½ years)	37·7	41·5	37·5	32·8	38·5	37·7
Gulu	30·0	25·5	31·0	29·5	25·5	27·5
Koba (3-4 years)	37·0	37·7	37·7	34·3	27·0	27·0
Masindi	28·4	28·0	31·4	28·0	22·8	23·2
West Uganda :						
Fort Portal	34·5	34·1	33·0	30·9	32·8	30·7
Mbarara	37·2	38·3	36·9	32·8	31·3	35·0
East Uganda :						
Mbale	30·5	33·1	32·0	27·1	29·0	29·1
South Uganda (Victoria Nyanza District) :						
Jinja	30·5	32·0	30·5	25·0	24·0	24·9
Kampala	29·6	31·0	29·1	26·3	28·1	30·8
Entebbe	24·2	24·8	23·8	20·1	19·7	19·8
Masaka	25·5	26·7	25·6	23·8	22·0	21·9
Bukoba	26·9	24·6	22·7	21·4	20·4	21·6

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
95.7	93.2	94.9	96.1	95.8	97.5	North Uganda :
100.8	96.7	102.0	101.5	98.5	99.0	Nimule.
85.0	86.0	89.0	90.0	89.0	89.0	Wadelai (2½ years).
93.5	91.5	94.0	97.0	97.0	98.0	Gulu (2-5 years).
84.0	84.2	86.8	88.4	90.7	89.4	Koba (3-4 years).
						Masindi.
						West Uganda :
82.6	80.9	82.7	79.9	81.2	81.9	Fort Portal.
84.1	84.5	84.5	84.3	82.2	82.8	Mbarara.
						East Uganda :
81.4	82.6	84.2	84.8	86.5	90.5	Mbale.
						South Uganda (Victoria Nyanza District) :
83.9	84.8	87.2	87.4	87.0	87.4	Jinja.
88.0	86.3	89.8	87.2	86.3	86.5	Kampala.
78.8	80.0	82.6	83.8	82.9	83.5	Entebbe.
80.7	80.6	82.5	83.5	82.1	82.1	Masaka.
81.1	81.9	83.1	83.7	83.7	83.1	Bukoba.

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
31.5	32.2	32.6	31.0	31.5	32.3	North Uganda :
47.3	36.2	42.5	46.8	53.0	39.0	Nimule.
28.0	25.0	27.0	27.0	30.4	27.0	Wadelai (2½ years).
30.0	28.0	30.0	32.7	37.0	37.0	Gulu.
23.2	23.2	25.8	27.4	31.6	27.9	Koba (3-4 years).
						Masindi.
						West Uganda :
32.6	30.0	30.5	30.0	29.1	31.8	Fort Portal.
35.6	34.0	33.6	34.3	31.6	32.5	Mbarara.
						East Uganda :
22.2	23.8	27.2	26.3	27.3	30.7	Mbale.
						South Uganda (Victoria Nyanza District) :
24.6	26.4	28.0	27.2	26.9	28.2	Jinja.
30.4	28.1	30.6	28.2	25.7	29.1	Kampala.
20.6	21.2	23.9	23.9	22.9	23.8	Entebbe.
23.7	23.9	25.6	27.0	25.2	25.1	Masaka.
21.9	24.9	25.9	25.1	25.1	23.7	Bukoba.

TABLE VIII

ABSOLUTE MINIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule	53·0	58·0	55·1	61·0	63·0	58·0
Wadelai (2½ years)	60·0	43·0	58·0	60·0	50·0	55·0
Gulu (2-5 years)	62·0	60·0	(64·0)	62·0	57·0	55·0
Koba	60·0	64·0	65·0	62·0	65·0	65·0
Masindi	60·0	60·0	60·0	60·0	62·0	60·0
West Uganda :						
Fort Portal	46·0	45·0	46·0	49·0	46·0	46·0
Mbarara	35·0	35·0	34·0	40·0	35·0	35·0
East Uganda :						
Mbale	60·0	56·0	60·0	60·0	57·0	50·0
South Uganda (Victoria Nyanza District) :						
Jinja	57·0	56·0	56·0	56·0	59·0	56·0
Kampala	57·0	58·0	59·0	60·0	54·0	57·0
Entebbe	58·0	57·0	60·0	59·0	58·0	58·0
Masaka	56·0	57·0	57·0	50·0	51·0	54·0
Bukoba	47·1	50·7	51·4	51·3	51·6	49·8

TABLE IX

ABSOLUTE MAXIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
North Uganda :						
Nimule	109·2	108·4	110·2	106·1	101·2	103·2
Wadelai (2½ years)	101·0	100·0	104·0	99·0	110·0	110·0
Gulu (2-5 years)	95·0	92·0	95·0	95·0	86·0	87·0
Koba (3-4 years)	101·0	103·0	106·0	106·0	100·0	100·0
Masindi	98·0	95·0	100·0	95·0	90·0	86·0
West Uganda :						
Fort Portal	88·0	88·0	88·0	88·0	88·0	87·0
Mbarara	95·0	93·0	95·0	96·0	84·0	86·0
East Uganda :						
Mbale	96·0	94·0	96·0	95·0	89·0	89·0
South Uganda (Victoria Nyanza District) :						
Jinja	91·0	94·0	95·0	91·0	90·0	90·0
Kampala	93·0	98·0	92·0	91·0	91·0	99·0
Entebbe	87·5	86·5	86·5	85·5	84·9	81·2
Masaka	87·0	87·0	87·0	86·0	83·0	83·0
Bukoba	88·0	85·6	86·0	89·4	90·5	90·0

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
57.0	57.0	56.0	58.0	58.0	56.0	North Uganda :
45.0	60.0	59.0	43.0	27.0	60.0	Nimule.
55.0	59.0	59.0	58.0	45.0	55.0	Wadelai (2½ years).
59.0	62.0	62.0	63.0	55.0	55.0	Gulu (2-5 years).
60.0	60.0	60.0	60.0	41.0	59.0	Koba.
						Masindi.
						West Uganda :
45.0	45.0	47.0	40.0	49.0	46.0	Fort Portal.
35.0	35.0	35.0	35.0	38.0	35.0	Mbarara.
						East Uganda :
57.0	56.0	54.0	57.0	59.0	58.0	Mbale.
						South Uganda (Victoria
						Nyanza District) :
56.0	54.0	55.0	57.0	58.0	55.0	Jinja.
55.0	56.0	58.0	58.0	59.0	45.0	Kampala.
55.0	56.9	56.0	58.0	58.2	55.2	Entebbe.
55.0	50.0	49.0	48.0	48.0	50.0	Masaka.
48.9	51.1	49.3	50.5	49.5	49.8	Bukoba.

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
100.5	99.4	99.5	99.8	98.2	101.0	North Uganda :
109.0	108.0	108.0	107.0	102.0	101.0	Nimule.
86.0	87.0	92.0	94.0	94.0	91.0	Wadelai (2½ years).
98.0	99.0	97.0	102.0	100.0	99.0	Gulu (2-5 years).
92.0	94.0	98.0	100.0	104.0	100.0	Koba (3-4 years).
						Masindi.
						West Uganda :
88.0	87.0	89.0	84.0	84.0	88.0	Fort Portal.
88.0	87.0	89.0	88.0	86.0	91.0	Mbarara.
						East Uganda :
85.0	85.0	89.0	88.0	90.0	94.0	Mbale.
						South Uganda (Victoria
						Nyanza District) :
85.0	87.0	(95.0)	90.0	90.0	90.0	Jinja.
98.0	89.0	104.0	92.0	93.0	90.0	Kampala.
81.0	83.0	86.2	86.2	85.0	89.0	Entebbe.
83.0	82.0	86.0	86.0	86.0	86.0	Masaka.
91.4	85.3	87.1	88.9	92.8	86.4	Bukoba.

TABLE X

MEAN MONTHLY RAINFALL

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
North Uganda :						
Nimule	0·29	1·10	2·60	3·74	6·12	3·40
Wadelai (9 years)	1·00	1·06	4·47	3·72	4·70	3·65
Gulu	0·13	2·17	3·71	6·44	8·17	7·28
Koba (2-3 years)	0·65	0·95	2·37	7·74	4·13	2·84
Masindi	1·24	2·20	3·74	6·78	6·33	4·38
West Uganda :						
Butiaba	0·57	0·99	3·23	4·38	5·14	2·35
Hoima	0·81	3·98	5·28	5·77	6·97	3·39
Fort Portal	1·14	2·68	5·59	5·83	5·27	2·97
Mubendi	1·35	3·66	4·82	6·22	3·55	2·24
Mbarara	1·36	2·12	2·92	4·23	2·16	0·77
East Uganda :						
Kumi	1·07	3·07	5·44	8·11	7·65	4·14
Ngora	0·62	3·46	5·03	6·29	7·92	5·68
Mbale	0·96	2·20	4·40	7·04	6·00	5·19
South Uganda (Victoria Nyanza District) :						
Jinja	2·57	2·77	4·74	7·83	4·90	2·35
Kampala	2·26	2·82	5·90	6·97	5·20	3·77
Entebbe	2·81	3·26	6·10	10·12	8·25	4·77
Masaka	1·79	2·19	3·63	7·11	6·68	1·80
Bukoba	4·21	4·88	8·66	16·70	11·54	1·73

<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.	<i>Year.</i> ins.	
4.82	5.35	4.91	4.82	4.71	0.46	42.32	North Uganda :
3.90	4.61	4.02	6.61	4.49	0.87	43.10	Nimule.
5.74	8.72	6.58	5.77	4.40	1.84	60.95	Wadelai (9 years).
3.75	4.38	5.55	4.74	4.11	1.93	43.14	Gulu.
3.52	5.27	5.94	5.74	5.52	1.19	51.85	Koba (2-3 years).
							Masindi.
							West Uganda :
1.90	3.50	4.94	2.74	3.01	0.78	33.53	Butiaba.
3.63	5.86	6.93	5.84	6.07	2.65	57.18	Hoima.
1.64	4.21	7.88	9.04	6.35	2.80	55.40	Fort Portal.
1.31	5.15	6.06	4.74	5.77	2.43	47.30	Mubendi.
0.48	1.43	4.17	3.49	4.17	2.11	29.41	Mbarara.
							East Uganda :
4.81	5.89	2.36	3.93	2.80	1.67	50.94	Kumi.
4.31	6.08	4.95	6.67	3.19	2.28	56.48	Ngora.
3.70	6.11	5.80	3.52	3.72	1.80	50.44	Mbale.
							South Uganda (Victoria Nyanza District) :
2.66	4.22	3.78	3.97	4.43	4.32	48.54	Jinja.
2.22	4.92	3.82	3.78	5.21	3.55	50.42	Kampala.
2.93	3.17	2.95	3.53	5.37	5.70	58.96	Entebbe.
1.17	2.04	2.70	3.47	3.76	3.54	39.88	Masaka.
1.30	2.87	3.15	4.52	8.55	7.20	75.31	Bukoba.

TABLE XI

MAXIMUM RAINFALL IN MONTH AND YEAR

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
North Uganda :						
Nimule	2.03	4.24	5.54	8.33	10.41	5.68
Wadelai	2.68	3.58	8.42	5.72	5.39	7.91
Gulu	0.33	3.63	6.40	7.70	12.62	9.10
Masindi	4.00	4.09	9.21	15.28	9.93	11.54
West Uganda :						
Butiaba	1.81	2.39	5.70	9.58	11.69	4.88
Hoima	1.61	9.41	8.27	8.06	10.82	6.35
Fort Portal . . .	(3.94)	5.87	11.02	8.35	8.82	7.17
Mubendi	2.33	8.68	6.53	8.49	4.73	4.73
Mbarara	3.33	2.91	3.75	8.26	3.42	1.65
East Uganda :						
Kumi	2.48	6.48	7.04	12.84	12.49	7.58
Ngora	1.28	9.63	9.91	8.79	9.49	10.44
Mbale	2.26	7.10	10.11	10.15	8.23	8.12
South Uganda (Victoria Nyanza District) :						
Jinja	4.65	6.32	10.10	10.91	8.62	4.71
Kampala	6.77	4.90	10.32	11.34	7.72	7.30
Entebbe	7.99	7.32	9.87	15.79	15.80	10.26
Masaka	3.29	5.17	7.18	10.07	14.67	6.15

<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.	<i>Year.</i> ins.	
7·90	10·54	8·92	7·92	7·20	6·67	58·25	North Uganda :
5·79	5·71	6·30	8·35	8·98	3·75	47·6	Nimule.
9·13	10·30	12·61	7·66	7·35	4·31	73·41	Wadelai.
5·46	8·53	8·69	8·90	9·07	2·92	64·96	Gulu.
							Masindi.

4·32	7·70	9·85	4·76	5·00	1·95	43·15	West Uganda :
6·99	8·15	14·27	9·49	11·46	9·59	71·08	Butiaba.
4·09	7·05	12·14	12·27	12·01	8·32	67·84	Hoima.
2·73	7·97	9·60	7·23	11·48	6·84	52·09	Fort Portal.
1·16	2·81	6·52	4·75	8·98	5·45	35·16	Mubendi.
							Mbarara.

6·43	6·28	3·74	7·63	5·06	5·52	60·2	East Uganda :
8·86	9·09	8·20	12·22	4·61	4·56	61·43	Kumi.
6·86	10·46	9·06	4·97	6·76	5·89	58·80	Ngora.
							Mbale.

4·76	7·82	7·86	5·68	10·09	10·14	55·52	South Uganda (Victoria
5·43	10·39	7·12	6·21	8·60	6·69	64·16	Nyanza District) :
5·72	6·75	5·62	6·50	12·05	12·51	75·71	Jinja.
4·73	4·48	4·99	7·35	7·27	6·95	58·92	Kampala.
							Entebbe.
							Masaka.

TABLE XII

MINIMUM RAINFALL IN MONTH AND YEAR

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
North Uganda :						
Nimule	0·00	0·00	0·30	1·10	0·94	1·26
Wadelai	0·12	0·00	1·55	1·69	3·34	1·18
Gulu	0·0	1·01	1·83	3·74	5·49	5·85
Masindi	0·0	0·20	0·20	3·76	4·34	0·87
West Uganda :						
Butiaba	0·0	0·0	1·62	2·55	2·07	1·30
Hoima	0·08	1·57	3·25	1·58	4·38	1·33
Fort Portal . . .	0·05	0·58	2·59	3·06	1·85	0·34
Mubendi	0·70	0·70	3·38	4·30	1·39	0·34
Mbarara	0·10	0·65	1·19	1·80	0·34	0·00
East Uganda :						
Kumi	0·00	0·18	3·93	5·74	2·78	1·64
Ngora	0·00	0·02	3·58	2·87	6·65	2·65
Mbale	0·01	0·20	1·76	3·08	4·02	3·00
South Uganda (Victoria Nyanza District) :						
Jinja	0·61	0·48	0·24	3·92	1·46	0·46
Kampala	0·36	0·77	3·36	3·99	3·85	2·17
Entebbe	0·61	0·26	0·83	5·43	2·70	0·97
Masaka	0·38	0·30	0·60	2·89	2·34	0·49

TABLE XIII

MAXIMUM RAINFALL IN 24 HOURS

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
North Uganda :						
Nimule	0·81	2·28	2·42	2·70	2·50	2·30
Wadelai (2½ years) .	0·53	1·90	1·15	1·50	2·10	3·00
Koba (2-3 years) . .	0·44	0·70	1·37	3·05	2·00	1·55
Masindi	0·75	0·96	2·72	1·75	1·28	3·75
West Uganda :						
Fort Portal	(3·94)	1·73	1·90	2·00	4·32	1·49
East Uganda :						
Mbale	0·38	2·40	3·85	3·00	1·83	1·50
Uganda (Victoria Nyanza District) :						
Kampala	4·55	0·90	2·15	2·16	2·31	2·30
Jinja	1·45	2·97	2·61	2·40	1·85	1·64
Entebbe	2·40	2·11	3·80	3·63	2·98	3·10
Masaka	1·25	2·17	1·88	2·70	3·25	1·15

<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.	<i>Year.</i> ins.	
2.52	2.57	0.34	1.86	1.00	0.00	27.29	North Uganda :
2.16	2.68	2.37	2.99	0.87	0.00	33.8	Nimule.
3.10	5.86	0.46	4.29	1.55	0.20	48.79	Wadelai.
0.56	2.05	3.28	0.87	1.81	0.00	40.87	Gulu.
							Masindi.
0.23	1.23	1.56	1.15	1.40	0.05	27.34	West Uganda :
1.05	2.87	2.56	3.33	4.17	0.09	44.98	Butiaba.
0.43	1.57	3.67	3.74	2.71	0.15	48.35	Hoima.
0.44	3.10	3.70	2.71	1.75	0.58	42.93	Fort Portal.
0.00	0.10	0.39	2.06	2.59	1.00	20.93	Mubendi.
							Mbarara.
2.99	5.55	0.80	0.63	1.45	0.17	43.77	East Uganda :
1.06	2.12	1.98	3.27	1.25	0.06	46.99	Kumi.
0.55	2.02	1.62	0.67	1.32	0.05	39.88	Ngora.
							Mbale.
0.43	1.46	0.83	2.20	0.98	1.17	41.53	South Uganda (Victoria
0.20	0.83	1.26	0.79	2.72	0.57	41.66	Nyanza District) :
0.31	0.18	0.64	0.96	0.90	1.63	47.02	Jinja.
0.00	0.54	1.16	1.06	1.48	0.68	23.60	Kampala.
							Entebbe.
							Masaka.
<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.		
3.30	2.53	6.20	3.28	2.68	1.04		North Uganda :
1.70	1.60	1.50	2.75	1.95	1.30		Nimule.
1.50	2.80	3.51	2.31	1.75	1.40		Wadelai (2½ years).
1.52	1.85	2.20	1.43	1.84	0.90		Koba (2-3 years).
							Masindi.
1.12	2.31	2.48	3.99	1.44	1.42		West Uganda :
							Fort Portal.
1.58	1.55	1.20	1.10	1.83	1.06		East Uganda :
							Mbale.
1.8	2.59	1.92	1.12	4.17	2.05		South Uganda (Victoria
2.37	2.50	4.60	2.60	4.60	1.45		Nyanza District) :
2.42	2.72	2.36	2.48	3.81	2.62		Kampala.
1.58	1.83	1.85	1.75	1.33	1.86		Jinja.
							Entebbe.
							Masaka.

TABLE XIV

MEAN NUMBER OF RAINDAYS

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
North Uganda :						
Nimule	0·7	2·1	4·3	7·0	9·9	7·2
Gulu	1·4	7·6	8·6	14·6	17·6	14·6
Koba	2·7	3·3	9·0	15·0	6·5	4·5
Masindi	2·6	5·7	8·1	13·1	12·9	7·9
West Uganda :						
Butiaba	1·5	3·0	6·0	10·0	8·0	5·5
Hoima	3·0	9·7	12·0	14·5	18·0	10·7
Fort Portal	4·0	7·7	12·0	14·2	13·6	8·3
Mubendi	4·0	9·0	10·0	14·4	11·0	5·4
Mbarara	5·3	7·0	9·2	12·4	8·3	2·4
East Uganda :						
Kumi	1·8	4·5	11·0	15·0	15·0	11·0
Ngora	2·6	5·4	9·0	12·6	17·6	11·4
Mbale	4·5	7·1	12·9	18·5	21·3	17·0
South Uganda (Victoria Nyanza District) :						
Jinja	6·2	7·2	10·6	15·9	14·9	8·9
Kampala	7·2	9·8	16·0	18·8	17·5	13·0
Entebbe	8·0	8·5	15·3	18·3	17·5	10·9
Masaka	7·2	8·3	10·7	17·0	15·6	6·6
Bukoba	9·0	9·0	16·0	21·0	15·0	3·0

TABLE XV

RELATIVE HUMIDITY

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
	%	%	%	%	%	%
Nimule, 7 a.m.	71	66	92	92	91	92
Wadelai, 7 a.m.	47	57	66	75	74	66
Bukoba (mean of day)	79	78	83	89	82	76

July. Aug. Sept. Oct. Nov. Dec. Year.

North Uganda :

9·0	8·9	7·8	8·0	6·4	1·0	72·3	Nimule.
14·7	16·3	12·2	15·7	11·7	4·3	139·3	Gulu.
8·0	10·0	9·0	10·0	10·5	6·0	94·5	Koba.
8·4	12·8	13·0	12·7	12·6	3·6	113·4	Masindi.

West Uganda :

4·5	7·0	8·5	8·0	8·0	3·0	73·0	Butiaba.
10·7	15·0	15·0	14·0	16·0	6·0	144·6	Hoima.
5·8	12·0	15·0	19·0	16·7	8·3	136·6	Fort Portal.
5·0	10·0	15·0	13·0	12·7	7·7	117·2	Mubendi.
2·3	6·4	10·0	13·7	17·0	9·5	103·5	Mbarara.

East Uganda :

11·0	13·0	8·5	10·2	9·0	4·0	114·0	Kumi.
10·0	10·0	13·8	13·0	9·0	5·2	119·6	Ngora.
15·4	17·1	17·5	15·1	14·8	7·5	168·7	Mbale.

South Uganda (Victoria Nyanza District) :

5·8	9·8	10·2	10·7	12·0	9·5	121·7	Jinja.
9·0	12·0	13·0	16·0	18·0	13·0	163·3	Kampala.
7·7	8·2	7·8	11·1	13·6	11·4	138·0	Entebbe.
4·2	8·1	8·4	11·1	13·4	10·8	121·4	Masaka.
4·0	7·0	8·0	11·0	17·0	14·0	134·0	Bukoba.

July. Aug. Sept. Oct. Nov. Dec. Year.

%	%	%	%	%	%	%	
94	96	90	91	90	86	88	Nimule, 7 a.m.
82	76	76	84	82	72	71	Wadelai, 7 a.m.
71	77	79	80	82	80	80	Bukoba (mean of day).

TABLE XVI

MEAN NUMBER OF DAYS WITH THUNDERSTORMS

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
South Uganda (Victoria Nyanza District) :						
Entebbe . . .	1·7	2·1	2·8	3·8	1·8	1·9
Bukoba . . .	6·0	7·0	12·0	10·0	8·0	4·0

TABLE XVII

CLOUD

(Scale 0–10, Mean of the Day)

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
North Uganda :						
Nimule . . .	1·6	1·6	1·9	1·8	1·5	1·7
West Uganda :						
Fort Portal . . .	2·2	2·5	2·8	3·0	2·6	2·9
Mbarara . . .	4·2	4·2	3·9	4·1	4·0	4·0
East Uganda :						
Mbale . . .	3·3	5·0	4·8	7·6	7·2	7·1
South Uganda (Victoria Nyanza District) :						
Jinja . . .	2·4	3·2	4·2	5·4	4·0	4·1
Entebbe . . .	4·7	4·6	4·8	5·0	5·2	4·8
Masaka . . .	2·3	2·6	2·8	3·3	3·2	2·4
Bukoba . . .	4·0	4·4	4·6	4·9	4·8	3·9

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
							South Uganda (Victoria Nyanza District) :
1.1	1.4	1.1	1.0	2.4	2.6	23.7	Entebbe.
4.0	5.0	8.0	11.0	12.0	8.0	95.0	Bukoba.

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
							North Uganda :
1.6	1.8	1.6	2.2	2.0	1.5	1.7	Nimule.

							West Uganda :
2.8	3.1	3.2	3.3	2.9	2.0	2.8	Fort Portal.
4.0	4.1	4.3	4.6	4.8	4.2	4.2	Mbarara.

							East Uganda :
4.6	5.6	3.9	4.1	5.1	2.5	5.1	Mbale.

							South Uganda (Victoria Nyanza District) :
3.4	4.2	3.0	3.3	4.3	3.7	3.8	Jinja.
5.1	5.4	5.0	4.8	4.7	4.4	4.9	Entebbe.
2.6	2.6	2.5	2.9	3.3	2.9	2.8	Masaka.
3.7	3.9	5.0	5.4	5.3	4.0	4.6	Bukoba.

TABLE XVIII

SUNSHINE

			<i>Jan.</i> h.m.	<i>Feb.</i> h.m.	<i>Mar.</i> h.m.	<i>April.</i> h.m.	<i>May.</i> h.m.	<i>June.</i> h.m.
North Uganda :								
Nimule	.	.	9.21	8.52	8.22	7.34	8.10	7.45
West Uganda :								
Fort Portal	.	.	5.20	5.15	4.54	4.18	5.33	5.07
Mbarara	.	.	8.38	8.12	7.51	7.27	7.56	8.13
South Uganda (Victoria Nyanza District) :								
Entebbe	.	.	6.33	6.4	5.33	<i>4.26</i>	5.6	5.43
Masaka	.	.	7.44	7.16	7.33	6.38	6.23	8.8

TABLE XIX

WIND STRENGTH (MEAN OF THE DAY)

(Beaufort Scale, 0-12)

			<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
North Uganda :								
Nimule	.	.	1.2	1.2	1.3	1.1	1.3	1.2
West Uganda :								
Fort Portal	.	.	1.0	1.0	1.0	1.0	0.9	1.0
Mbarara	.	.	2.6	2.7	2.8	3.0	3.2	3.7
East Uganda :								
Mbale	.	.	2.2	2.8	3.4	2.3	2.4	2.4
South Uganda (Victoria Nyanza District) :								
Jinja	.	.	2.0	2.0	2.1	2.0	1.9	2.1
Masaka	.	.	1.8	2.2	2.2	2.1	2.0	1.7
Bukoba	.	.	2.2	2.8	2.8	2.3	2.5	2.3

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Mean of Year.</i>	
<i>h.m.</i>	<i>h.m.</i>	<i>h.m.</i>	<i>h.m.</i>	<i>h.m.</i>	<i>h.m.</i>	<i>h.m.</i>	
7.15	7.22	8.20	8.19	8.26	8.53	8.13	North Uganda : Nimule.
4.39	3.48	4.32	3.42	4.09	4.17	4.37	West Uganda : Fort Portal.
8.54	8.47	8.8	8.3	7.53	8.34	8.13	Mbarara.
							South Uganda (Victoria Nyanza District):
5.36	5.55	6.13	6.3	5.50	5.52	5.44	Entebbe.
7.7	7.2	8.3	7.48	7.34	7.14	7.22	Masaka.

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
1.2	1.1	1.1	1.0	1.2	1.2	1.2	North Uganda : Nimule.
1.0	1.0	1.1	1.1	1.0	0.6	1.0	West Uganda : Fort Portal.
4.3	3.8	3.7	3.5	3.2	2.8	3.3	Mbarara.
2.1	1.9	2.1	1.9	1.9	1.8	2.3	East Uganda : Mbale.
							South Uganda (Victoria Nyanza District) :
2.0	2.2	2.0	1.8	1.9	2.0	2.0	Jinja.
1.7	1.7	1.6	1.7	1.8	1.7	1.8	Masaka.
2.2	2.3	2.0	2.2	2.4	2.4	2.3	Bukoba.

TABLE XX

WIND DIRECTION. PERCENTAGE OF TOTAL OBSERVATIONS

* Less than 1 per cent.

JANUARY

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
North :									
Nimule (7 a.m.-2 p.m.)	2	9	79	0	0	0	4	6	0
Wadelai	0	8	75	10	0	0	0	0	6
West :									
Fort Portal . . .	22	2	7	1	12	1	14	*	41
Mbarara	9	14	21	12	6	7	22	9	0
East :									
Mbale	9	*	19	0	37	0	35	0	0
South :									
Jinja	3	0	20	*	33	0	42	0	2
Entebbe	4	0	3	0	14	15	12	0	52
Masaka	7	20	32	17	8	8	7	*	0
Bukoba	6	5	24	15	9	7	9	4	22

FEBRUARY

North :									
Nimule	7	10	77	0	6	0	0	0	0
Wadelai	0	14	79	0	0	1	5	0	1
West :									
Fort Portal . . .	14	2	8	*	15	*	11	1	48
Mbarara	7	14	14	13	8	4	17	23	0
East :									
Mbale	15	0	44	0	25	0	17	0	0
South :									
Jinja	1	0	23	1	35	1	38	0	0
Entebbe	3	0	5	0	13	13	11	1	54
Masaka	2	9	37	30	11	2	9	*	0
Bukoba	4	5	23	13	13	10	10	5	17

MARCH

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
North :									
Nimule . . .	11	17	64	0	7	0	1	0	0
Wadelai . . .	19	11	65	0	1	0	3	0	1
West :									
Fort Portal . . .	12	1	7	1	15	1	15	1	48
Mbarara . . .	11	19	15	11	5	7	17	15	0
East :									
Mbale	8	0	41	0	30	0	22	0	0
South :									
Jinja	3	0	5	0	34	7	50	0	0
Entebbe	3	0	4	0	12	17	11	0	53
Masaka	3	2	20	50	15	3	6	1	0
Bukoba	4	5	22	12	18	10	12	4	13

APRIL

North :									
Nimule	3	3	77	4	10	0	2	1	0
Wadelai	18	3	75	0	1	1	0	1	0
West :									
Fort Portal	14	*	4	1	25	2	8	*	46
Mbarara	14	27	20	11	11	5	9	3	0
East :									
Mbale	0	0	31	0	40	0	29	0	0
South :									
Jinja	2	0	9	0	27	8	55	0	0
Entebbe	2	0	2	1	16	12	17	1	49
Masaka	2	4	24	41	18	1	8	*	0
Bukoba	5	4	24	13	17	7	7	3	20

TABLE XX (*continued*)

WIND DIRECTION. PERCENTAGE OF TOTAL OBSERVATIONS.

* Less than 1 per cent.

MAY

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
North :									
Nimule . . .	9	2	87	0	2	0	0	0	0
Wadelai . . .	0	0	98	0	2	0	0	0	0
West :									
Fort Portal . . .	9	0	3	2	29	2	6	0	49
Mbarara . . .	17	15	19	14	16	5	10	5	0
East :									
Mbale . . .	0	0	24	0	38	0	39	0	0
South :									
Jinja . . .	1	0	9	0	27	8	55	0	0
Entebbe . . .	2	0	2	1	19	12	17	1	46
Masaka . . .	1	4	26	36	18	3	12	*	0
Bukoba . . .	1	3	26	15	24	7	4	0	19

JUNE

North :									
Nimule . . .	12	7	80	0	1	0	0	0	0
Wadelai . . .	2	20	78	0	0	0	0	0	0
West :									
Fort Portal . . .	8	0	3	1	31	2	8	*	47
Mbarara . . .	10	11	28	16	20	2	11	1	0
East :									
Mbale . . .	2	0	42	0	26	0	30	0	0
South :									
Jinja . . .	*	1	7	0	29	9	52	0	1
Entebbe . . .	2	0	4	1	20	10	16	1	46
Masaka . . .	3	2	37	36	14	3	6	0	0
Bukoba . . .	2	2	21	20	27	5	3	2	17

JULY

			N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
North :											
Nimule	.	.	3	2	95	0	0	0	0	0	0
Wadelai	.	.	2	0	85	5	2	5	0	0	0
West :											
Fort Portal	.	.	11	*	5	3	22	*	9	*	50
Mbarara	.	.	7	7	34	15	17	4	13	4	0
East :											
Mbale	.	.	1	0	43	4	28	0	25	0	0
South :											
Jinja	.	.	2	0	12	3	23	2	50	*	8
Entebbe	.	.	2	0	7	1	17	11	15	1	46
Masaka	.	.	2	6	31	41	13	1	6	0	0
Bukoba	.	.	1	4	27	22	19	5	2	1	19

AUGUST

North :											
Nimule	.	.	7	5	84	0	2	1	1	0	0
Wadelai	.	.	4	0	94	0	2	0	0	0	0
West :											
Fort Portal	.	.	12	*	3	1	20	1	14	*	49
Mbarara	.	.	8	22	23	12	8	6	16	5	0
East :											
Mbale	.	.	1	0	56	0	25	0	18	0	0
South :											
Jinja	.	.	4	0	8	2	21	7	50	0	8
Entebbe	.	.	2	1	5	1	15	13	19	1	43
Masaka	.	.	4	5	25	35	14	7	9	1	0
Bukoba	.	.	6	5	26	18	10	2	3	6	24

TABLE XX (*continued*)

WIND DIRECTION. PERCENTAGE OF TOTAL OBSERVATIONS

* Less than 1 per cent.

SEPTEMBER

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
North :									
Nimule . . .	4	2	89	0	3	2	0	0	0
Wadelai . . .	0	0	90	0	0	6	0	0	4
West :									
Fort Portal . . .	14	6	3	1	19	0	12	0	45
Mbarara . . .	3	17	26	14	11	5	19	5	0
East :									
Mbale . . .	1	1	58	1	22	0	17	0	0
South :									
Jinja . . .	4	0	11	0	27	0	47	0	12
Entebbe . . .	3	0	6	1	17	12	20	0	41
Masaka . . .	2	5	39	27	5	10	10	2	0
Bukoba . . .	8	3	18	15	14	4	11	6	21

OCTOBER

North									
Nimule . . .	2	0	86	0	4	0	6	1	0
Wadelai . . .	0	2	98	0	0	0	0	0	0
West :									
Fort Portal . . .	21	4	3	1	18	1	10	*	42
Mbarara . . .	4	17	25	15	3	9	15	12	0
East :									
Mbale . . .	4	0	55	1	18	0	21	*	0
South :									
Jinja . . .	1	0	4	0	29	2	50	0	14
Entebbe . . .	3	0	6	2	15	14	19	0	41
Masaka . . .	9	6	30	24	6	11	14	0	0
Bukoba . . .	10	9	24	11	4	4	15	7	16

NOVEMBER

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
North :									
Nimule . . .	2	2	85	0	2	0	8	1	0
Wadelai . . .	0	7	93	0	0	0	0	0	0
West :									
Fort Portal . . .	15	2	3	1	22	*	10	*	46
Mbarara . . .	4	18	23	16	4	10	16	9	0
East :									
Mbale . . .	5	0	50	0	24	*	20	0	0
South :									
Jinja . . .	3	0	11	0	32	0	48	0	6
Entebbe . . .	4	0	3	1	15	16	17	0	44
Masaka . . .	8	10	46	16	8	4	8	0	0
Bukoba . . .	9	6	23	13	3	2	12	8	25

DECEMBER

North :									
Nimule . . .	1	0	94	0	2	0	3	0	0
Wadelai . . .	0	0	100	0	0	0	0	0	0
West :									
Fort Portal . . .	16	1	6	*	13	*	16	*	48
Mbarara . . .	3	18	25	13	2	8	24	7	0
East :									
Mbale . . .	4	0	48	0	23	0	25	0	0
South :									
Jinja . . .	4	0	14	0	26	0	54	0	2
Entebbe . . .	5	0	5	0	13	16	17	0	44
Masaka . . .	5	4	36	19	17	3	15	1	1
Bukoba . . .	9	7	24	10	5	3	11	3	22

TABLE XXI

SEASONAL WINDS AT HOURS OF OBSERVATION. PERCENTAGE OF OBSERVATIONS

(a) FORT PORTAL

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
At 7 hr. :									
Dec. Jan. Feb. .	9.4	0.7	7.0	*	12.0	0.6	15.1	*	54.9
Mar. April, May .	7.3	*	4.7	1.2	17.7	0.9	12.6	0.4	54.8
June, July, Aug. .	4.1	0.0	3.1	1.0	17.8	0.7	14.1	0.1	59.1
Sept. Oct. Nov. .	13.7	6.4	2.6	0.5	13.7	0.5	13.7	0.1	49.0
<i>Mean of Year .</i>	8.5	1.7	4.4	0.7	15.3	0.7	13.9	0.2	54.6
At 14 hr. :									
Dec. Jan. Feb. .	33.7	3.9	9.9	1.0	16.9	1.0	4.8	0.7	28.3
Mar. April, May .	13.7	0.7	5.8	1.0	37.4	3.3	4.6	0.7	32.7
June, July, Aug. .	13.5	0.5	6.0	2.8	33.6	1.3	6.9	0.4	34.8
Sept. Oct. Nov. .	24.7	3.5	5.3	1.2	21.4	0.5	5.6	0.1	37.5
<i>Mean of Year .</i>	21.2	2.1	6.8	1.5	27.6	1.6	5.4	0.5	33.2
At 21 hr. :									
Dec. Jan. Feb. .	10.0	0.8	4.5	0.0	11.4	0.1	20.7	0.4	52.1
Mar. April, May .	13.6	0.4	3.6	0.6	13.3	0.7	12.1	0.1	55.5
June, July, Aug. .	13.9	0.2	2.3	1.0	21.6	0.8	8.9	0.1	51.0
Sept. Oct. Nov. .	12.3	1.4	0.5	1.0	24.5	0.1	12.9	0.3	46.8
<i>Mean of Year .</i>	12.5	0.7	2.8	0.6	17.5	0.5	13.3	0.2	51.6
Mean of the Day :									
Dec. Jan. Feb. .	17.7	1.8	7.1	0.4	13.4	0.6	13.5	0.4	45.1
Mar. April, May .	11.5	0.5	4.7	0.9	22.8	1.6	9.8	0.4	47.7
June, July, Aug. .	10.5	0.2	3.8	1.6	24.4	1.0	10.0	0.2	48.3
Sept. Oct. Nov. .	16.9	3.8	2.8	0.9	19.9	0.4	10.7	0.2	44.5
<i>Mean of Year .</i>	14.1	1.5	4.7	0.9	20.1	0.9	11.0	0.3	46.5

(b) MBARARA

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
7 hr. :									
Dec. Jan. Feb. .	6·7	17·3	24·7	9·3	3·0	3·7	19·0	16·3	0·0
Mar. April, May .	16·6	26·3	23·3	11·0	3·0	4·0	13·6	2·3	0·0
June, July, Aug. .	8·3	16·0	36·3	10·7	9·7	2·3	13·7	3·0	0·0
Sept. Oct. Nov. .	4·0	18·4	33·4	12·8	3·7	3·7	18·0	6·0	0·0
<i>Mean of Year</i> .	8·9	9·5	29·4	11·0	4·8	3·4	16·1	6·9	0·0
14 hr. :									
Dec. Jan. Feb. .	5·6	17·3	23·0	14·3	9·3	6·3	12·0	12·6	0·0
Mar. April, May .	11·7	19·0	16·3	11·3	17·0	5·0	9·3	10·4	0·0
June, July, Aug. .	7·3	11·0	22·0	21·7	21·0	5·3	8·7	3·7	0·0
Sept. Oct. Nov. .	2·6	20·0	23·6	19·2	11·0	9·0	7·0	7·6	0·0
<i>Mean of Year</i> .	6·8	16·8	21·2	16·0	14·6	6·4	9·2	8·6	0·0
21 hr. :									
Dec. Jan. Feb. .	6·3	10·6	12·6	13·6	4·0	9·3	32·3	11·3	0·0
Mar. April, May .	13·3	15·7	14·3	13·3	11·7	7·3	13·7	10·7	0·0
June, July, Aug. .	9·7	11·0	26·3	11·3	14·7	6·3	16·0	4·7	0·0
Sept. Oct. Nov. .	4·3	12·7	17·3	12·7	3·7	12·0	25·0	12·3	0·0
<i>Mean of Year</i> .	8·4	12·5	17·6	12·7	8·5	8·7	21·7	9·7	0·0
Mean of the Day :									
Dec. Jan. Feb. .	6·3	15·3	20·0	12·7	5·3	6·4	21·0	13·0	0·0
Mar. April, May .	14·0	20·3	18·0	12·0	10·6	5·6	12·0	7·5	0·0
June, July, Aug. .	8·3	13·3	28·4	14·4	15·0	4·0	13·3	3·3	0·0
Sept. Oct. Nov. .	3·7	17·3	24·6	15·0	6·0	8·0	16·7	8·7	0·0
<i>Mean of Year</i> .	8·1	16·5	22·8	13·5	9·2	6·0	15·7	8·1	0·0

TABLE XXI (*continued*)

SEASONAL WINDS AT HOURS OF OBSERVATION. PERCENTAGE OF OBSERVATIONS

(c) ENTEBBE

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
7 hr. :									
Dec. Jan. Feb. .	4.4	0.1	5.6	0.0	11.5	8.0	14.9	0.2	54.7
Mar. April, May .	1.4	0.0	3.4	0.3	15.6	5.1	17.3	1.5	55.4
June, July, Aug. .	3.3	0.4	7.9	0.4	16.8	8.4	17.8	1.2	43.8
Sept. Oct. Nov. .	4.9	0.1	8.4	1.4	17.1	6.1	17.0	0.3	44.7
<i>Mean of Year</i> .	3.5	0.1	6.3	0.5	15.2	6.9	16.8	0.8	49.9
14 hr. :									
Dec. Jan. Feb. .	6.8	0.0	6.7	0.1	24.8	33.1	18.8	0.5	9.1
Mar. April, May .	4.4	0.0	4.6	0.6	25.2	33.7	19.7	0.6	11.2
June, July, Aug. .	1.8	0.5	7.3	2.6	28.0	23.8	23.7	1.9	10.5
Sept. Oct. Nov. .	3.6	0.0	6.3	2.4	23.0	28.7	28.6	0.1	7.3
<i>Mean of Year</i> .	4.2	0.1	6.2	1.4	25.2	29.8	22.7	0.8	9.5
21 hr. :									
Dec. Jan. Feb. .	0.7	0.0	0.9	0.0	4.6	5.5	6.0	0.2	82.1
Mar. April, May .	0.3	0.0	0.6	0.3	6.4	2.1	7.5	0.0	82.9
June, July, Aug. .	1.2	0.0	1.3	0.0	7.3	2.3	8.5	0.2	79.6
Sept. Oct. Nov. .	1.7	0.0	0.8	0.1	7.7	6.6	10.5	0.1	72.4
<i>Mean of Year</i> .	1.0	0.0	0.9	0.1	6.5	4.1	8.1	0.1	79.2
Mean of the Day :									
Dec. Jan. Feb. .	4.0	0.0	4.4	0.0	13.6	15.5	13.2	0.3	48.6
Mar. April, May .	2.0	0.0	2.9	0.4	15.7	13.6	14.8	0.7	49.6
June, July, Aug. .	2.1	0.3	5.5	1.0	17.5	11.5	16.6	1.1	44.6
Sept. Oct. Nov. .	3.4	0.0	5.2	1.3	15.9	13.8	18.7	0.2	41.5
<i>Mean of Year</i>	2.9	0.1	4.5	0.7	15.7	13.6	15.8	0.6	46.1

(d) BUKOBA

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
7 hr. :									
Dec. Jan. Feb. .	7	4	20	13	16	8	7	4	21
Mar. April, May .	3	4	18	15	29	9	5	2	15
June, July, Aug. .	1	2	17	20	37	5	2	5	11
Sept. Oct. Nov. .	10	6	19	12	8	4	9	8	24
<i>Mean of Year .</i>	5	4	18.5	15	22.5	6.5	6	5	17.5
14 hr. :									
Dec. Jan. Feb. .	7	8	45	18	4	4	4	5	5
Mar. April, May .	3	7	44	20	10	4	4	3	5
June, July, Aug. .	1	6	48	33	7	0	0	2	3
Sept. Oct. Nov. .	7	8	44	20	9	2	3	3	4
<i>Mean of Year .</i>	4.5	7.5	45	23	7.5	2.5	2.5	3	4
21 hr. :									
Dec. Jan. Feb. .	5	6	6	7	6	7	20	7	36
Mar. April, May .	4	1	10	4	21	12	13	2	33
June, July, Aug. .	6	3	9	8	13	7	5	3	46
Sept. Oct. Nov. .	11	4	6	8	3	4	24	10	30
<i>Mean of Year .</i>	6.5	3.5	8	7	11	7.5	15.5	5.5	36
Mean of the Day :									
Dec. Jan. Feb. .	6	5	23	14	8	6	11	6	21
Mar. April, May .	4	4	24	13	20	8	8	2	17
June, July, Aug. .	3	4	25	20	18	4	3	3	20
Sept. Oct. Nov. .	9	6	23	13	7	3	12	7	20
<i>Mean of Year .</i>	5.5	5	24	15	13	5	8.5	4.5	19.5

TABLE XXII. WINDS OF STRENGTH 4-12, BEAUFORT SCALE, AT

(a) FORT PORTAL

Per 100 Observations at each of the Hours 7, 14, and 21

JANUARY

	No. of winds per 100 observations of strength			Direction of strong winds						Average wind force (B.S.)		
	4.5	6.7	8.12	N.	NE.	E.	SE.	S.	SW.		W.	NW.
7 hr. .	2.5	0.0	0.0	1.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.8
14 hr. .	6.5	0.5	0.0	5.5	0.0	0.5	0.0	1.0	0.0	0.0	0.0	1.4
21 hr. .	2.5	0.0	0.0	0.5	0.0	0.5	0.0	1.5	0.0	0.0	0.0	0.8
Mean	3.8	0.2	0.0	2.3	0.0	0.3	0.0	1.3	0.0	0.0	0.0	1.0

FEBRUARY

	1.0	0.5	0.0	0.5	0.0	0.5	0.0	0.5	0.0	0.5	0.0	0.0	0.8
7 hr.	10.5	0.5	0.0	6.0	0.5	0.0	0.0	4.0	0.0	0.5	0.0	0.0	1.3
14 hr.	3.0	0.0	0.0	1.0	0.0	0.0	0.0	1.5	0.0	0.5	0.0	0.0	0.9
21 hr.	4.8	0.3	0.0	2.5	0.2	0.2	0.0	2.0	0.0	0.3	0.0	0.0	1.0
Mean													

MARCH

	2.5	0.0	0.0		0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0
7 hr.	2.5	0.0	0.0		0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0
14 hr.	4.5	1.5	0.0		3.0	0.0	0.5	0.0	1.5	0.5	0.5	0.0
21 hr.	1.0	1.0	0.5		1.0	0.0	1.0	0.0	0.5	0.0	0.0	0.0
Mean	2.7	0.8	0.2		1.3	0.0	0.5	0.0	1.5	0.2	0.2	0.0

APRIL

7 hr.	.	2.5	0.0	0.0	1.0	0.0	0.5	0.0	1.0	0.0	0.0	0.0	0.9
14 hr.	.	6.5	0.0	0.0	3.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	1.1
21 hr.	.	1.0	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Mean	.	3.3	0.2	0.0	1.7	0.0	0.2	0.0	1.5	0.0	0.2	0.0	1.0

MAY

7 hr.	.	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.5	0.0	0.6
14 hr.	.	8.0	1.0	0.0	2.0	0.0	0.5	0.0	6.5	0.0	0.0	0.0	1.1
21 hr.	.	1.0	0.5	0.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.8
Mean	.	3.7	0.5	0.0	0.8	0.0	0.2	0.0	3.0	0.0	0.2	0.0	0.9

JUNE

7 hr.	.	0.5	0.5	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0
14 hr.	.	4.0	0.5	0.0	1.0	0.0	0.0	0.5	2.5	0.0	0.5	0.0	1.1
21 hr.	.	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.0
Mean	.	1.7	0.3	0.0	0.3	0.0	0.0	0.2	1.3	0.0	0.2	0.0	1.0

JULY

7 hr.	.	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
14 hr.	.	3.5	0.5	0.0	1.0	0.0	0.0	0.5	2.0	0.0	0.5	0.0	1.2
21 hr.	.	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Mean	.	1.7	0.2	0.0	0.8	0.0	0.0	0.2	0.7	0.0	0.2	0.0	1.0

AUGUST

7 hr.	.	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.6
14 hr.	.	6.0	0.5	0.0	1.0	0.0	0.0	0.0	3.0	0.0	2.5	0.0	1.1
21 hr.	.	1.0	1.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.2
Mean	.	2.3	0.7	0.0	0.8	0.0	0.0	0.0	1.0	0.0	1.2	0.0	1.0

TABLE XXII (continued)

SEPTEMBER													
No. of winds per 100 observations of strength				Direction of strong winds								Average wind force (B.S.)	
4-5	6-7	8-12		N.	NE.	E.	SE.	S.	SW.	W.	NW.		
7 hr.	.	.	.	2-5	0-5	0-0	1-0	0-0	0-0	1-0	0-0	0-0	1-2
14 hr.	.	.	.	7-0	1-0	0-0	0-0	0-5	0-0	3-5	0-0	0-0	1-2
21 hr.	.	.	.	1-5	1-5	0-5	0-0	0-5	0-0	2-5	0-0	0-0	1-0
Mean	.	.	.	3-7	1-0	0-2	1-8	0-3	0-3	0-0	2-3	0-0	1-1
OCTOBER													
7 hr.	.	.	.	0-5	0-5	0-0	1-0	0-0	0-0	0-0	0-0	0-0	1-1
14 hr.	.	.	.	4-0	0-0	0-0	3-5	0-0	0-0	0-5	0-0	0-0	1-2
21 hr.	.	.	.	0-5	0-0	0-5	0-5	0-0	0-0	0-5	0-0	0-0	1-1
Mean	.	.	.	1-7	0-2	0-2	1-7	0-0	0-0	0-3	0-0	0-0	1-1
NOVEMBER													
7 hr.	.	.	.	2-5	0-0	0-0	2-5	0-0	0-0	0-0	0-0	0-0	0-8
14 hr.	.	.	.	2-5	0-0	0-0	1-0	0-0	0-0	0-5	0-0	1-0	1-1
21 hr.	.	.	.	2-5	0-0	0-0	1-5	0-0	0-0	1-0	0-0	0-0	1-2
Mean	.	.	.	2-5	0-0	0-0	1-7	0-0	0-0	0-5	0-0	0-3	1-0
DECEMBER													
7 hr.	.	.	.	1-0	0-5	0-0	0-5	0-0	0-0	1-0	0-0	0-0	0-5
14 hr.	.	.	.	9-0	1-0	0-0	4-5	0-0	1-0	4-0	0-0	0-5	0-8
21 hr.	.	.	.	2-0	0-0	0-0	0-0	0-0	0-0	2-0	0-0	0-0	0-6
Mean	.	.	.	4-0	0-5	0-0	1-7	0-0	0-3	0-0	2-3	0-0	0-6

SEASONAL STRONG WINDS PER 100 OBSERVATIONS

Mean of the Day :

Dec. Jan. Feb. . .	4.2	0.3	0.0	2.1	0.1	0.3	0.0	1.8	0.0	0.2	0.0	0.9
Mar. April, May . .	3.2	0.5	0.1	1.3	0.0	0.3	0.0	2.0	0.1	0.2	0.0	1.0
June, July, Aug. . .	1.9	0.4	0.0	0.6	0.0	0.0	0.1	1.0	0.0	0.5	0.0	1.0
Sept. Oct. Nov. . .	2.6	0.4	0.1	1.7	0.1	0.1	0.0	1.0	0.0	0.1	0.0	1.1
Mean of Year. . .	3.0	0.4	0.05	1.4	0.05	0.2	0.05	1.4	0.05	0.25	0.0	1.0

(b) MBARARA

Per 100 Observations at each of the Hours 7, 14, and 21

JANUARY

	No. of winds per 100 observations of strength			Direction of strong winds					Average wind force (B.S.)			
	4.5	6.7	8.12	N.	NE.	E.	SE.	S.		SW.	W.	NW.
7 hr.	12.0	1.0	1.0	1.0	4.0	4.0	0.0	0.0	0.0	4.0	1.0	2.3
14 hr.	28.0	5.0	0.0	2.5	10.0	5.0	7.0	0.0	2.5	5.0	1.0	3.0
21 hr.	16.0	3.0	0.0	2.5	1.0	1.5	2.5	0.0	1.5	8.5	1.5	2.6
Mean	19.0	3.0	0.3	2.0	5.0	3.5	3.2	0.0	1.3	5.8	1.2	2.6

FEBRUARY

7 hr. . .	8.0	1.0	0.0	1.0	2.5	2.0	1.5	0.0	1.0	2.0
14 hr. . .	14.5	12.5	3.5	1.0	5.5	5.5	5.5	0.0	2.5	3.3
21 hr. . .	13.0	1.5	3.0	0.0	1.5	3.5	3.5	1.0	3.5	2.7
Mean . . .	11.8	5.0	2.2	0.7	3.2	3.7	3.5	0.3	2.2	2.7

TABLE XXII (continued)

MARCH											
	No. of winds per 100 observations of strength				Direction of strong winds						Average wind force (B.S.)
	4.5	6.7	8.12	N.	NE.	E.	SE.	S.	SW.	W.	NW.
7 hr. .	12.0	4.0	0.0	1.5	3.5	6.5	1.5	0.0	1.0	1.5	0.5
14 hr. .	24.0	9.0	6.0	1.0	9.0	5.0	8.0	0.0	5.0	6.0	5.0
21 hr. .	21.0	5.0	2.5	1.0	6.5	4.0	3.0	1.0	6.0	4.0	3.0
Mean	19.0	6.0	2.8	1.2	6.3	5.2	4.2	0.3	4.0	3.5	2.8
APRIL											
7 hr. .	14.0	3.0	1.5	0.0	6.0	8.0	2.5	0.0	0.0	1.5	0.5
14 hr. .	20.0	8.0	5.0	1.0	6.5	7.5	9.0	1.0	2.5	4.0	1.5
21 hr. .	14.0	5.0	0.5	0.0	3.0	4.0	3.0	0.0	2.5	5.0	2.0
Mean	16.0	5.3	2.3	0.3	5.2	6.5	4.8	0.3	1.7	3.5	3.3
MAY											
7 hr. .	22.0	4.5	0.0	12.0	3.5	3.0	3.5	0.0	2.0	2.0	0.5
14 hr. .	22.0	10.0	0.0	1.0	3.5	9.0	5.5	2.0	2.0	4.5	4.5
21 hr. .	30.0	2.0	1.0	3.0	4.0	5.5	3.0	3.0	5.5	3.5	5.5
Mean	24.7	5.5	0.3	5.3	3.7	5.8	4.0	1.7	3.2	3.3	3.5
JUNE											
7 hr. .	26.5	12.0	5.5	4.5	16.5	10.0	7.5	4.5	0.0	1.0	0.0
14 hr. .	26.5	21.0	10.0	4.5	1.0	13.0	15.5	8.0	4.5	10.0	1.0
21 hr. .	44.5	9.0	1.0	3.5	10.0	10.0	13.0	4.5	3.5	6.5	3.5
Mean	32.5	14.0	5.5	4.2	9.2	11.0	12.0	5.7	2.7	5.8	1.5

JULY

7 hr. .	21.0	5.5	9.0	1.0	3.5	17.0	6.5	5.5	1.0	1.0	0.0	3.7
14 hr. .	21.0	15.5	22.0	2.0	5.5	13.5	16.5	2.0	2.0	12.5	4.5	5.0
21 hr. .	31.0	10.0	11.0	3.5	4.5	12.0	9.0	2.0	6.5	11.0	3.5	4.2
Mean	24.3	10.3	14.0	2.2	4.5	14.2	10.7	3.2	3.2	8.2	2.7	4.3

AUGUST

7 hr. .	25.0	7.5	1.5	1.5	13.5	10.0	5.0	1.5	1.5	1.0	0.0	3.2
14 hr. .	35.0	20.0	10.0	1.0	20.0	10.0	10.0	1.5	7.5	10.0	5.0	4.5
21 hr. .	31.0	13.0	3.5	3.5	9.0	7.5	3.5	1.5	6.5	12.0	4.0	3.6
Mean	30.3	13.2	5.0	2.0	14.2	9.2	6.2	1.5	5.2	7.7	3.0	3.8

SEPTEMBER

7 hr. .	28.0	6.0	0.0	1.0	7.5	12.0	7.5	1.5	0.0	2.5	2.5	3.0
14 hr. .	31.0	20.0	14.0	0.0	21.0	14.0	12.0	1.5	6.0	6.5	4.0	4.7
21 hr. .	33.5	4.0	2.5	0.5	6.0	10.0	3.5	2.5	7.5	7.5	2.5	3.4
Mean	30.8	10.0	5.5	0.5	11.5	12.0	7.7	1.8	4.5	5.5	3.0	3.7

OCTOBER

7 hr. .	14.0	0.0	1.5	0.0	5.0	4.0	2.5	1.5	0.0	2.5	0.0	2.8
14 hr. .	31.5	16.0	12.0	1.0	16.0	8.5	14.0	1.0	7.5	4.0	7.5	4.4
21 hr. .	28.0	7.0	1.0	1.0	2.5	14.5	3.5	0.0	5.5	4.5	4.5	3.2
Mean	24.5	7.7	4.8	0.7	7.8	9.0	6.7	0.8	4.3	3.7	4.0	3.5

NOVEMBER

7 hr. .	10.0	1.0	1.0	0.0	1.0	4.0	1.5	1.0	0.0	3.5	1.0	2.4
14 hr. .	23.5	14.0	12.5	0.0	12.5	10.5	13.5	1.5	6.0	2.5	3.5	4.3
21 hr. .	21.5	1.0	0.0	0.0	4.0	2.5	3.5	1.5	3.5	4.0	3.5	2.8
Mean	18.3	5.3	4.5	0.0	5.8	5.7	6.2	1.3	3.2	3.3	2.7	3.2

TABLE XXII (continued)

DECEMBER

DECEMBER

	No. of winds per 100 observations of strength			Direction of strong winds							Average wind force (B.S.)	
	4-5	6-7	8-12	N.	NE.	E.	SE.	S.	SW.	W.		NW.
7 hr.	4.0	3.5	2.5	0.0	2.5	6.5	0.0	0.0	0.0	1.0	0.0	2.7
14 hr.	25.5	5.0	1.5	0.0	7.5	4.0	7.5	1.0	4.0	4.0	4.0	3.1
21 hr.	14.0	0.0	0.0	0.0	3.0	2.5	4.0	0.0	1.0	2.5	1.0	2.7
Mean	14.5	2.8	1.3	0.0	4.3	4.3	3.8	0.3	1.7	2.5	1.7	2.8
SEASONAL STRONG WINDS												
7 hr. observations :	8.0	1.8	1.2	0.7	3.0	4.2	0.5	0.0	0.0	2.0	0.7	2.3
Dec. Jan. Feb. . .	16.0	3.8	0.5	4.5	4.3	5.8	2.5	0.0	1.0	1.7	0.5	2.7
Mar. April, May . .	24.2	8.3	5.3	2.3	11.2	12.3	6.3	3.8	0.8	1.0	0.0	3.5
June, July, Aug. . .	17.3	2.3	0.8	0.3	4.5	6.7	3.8	1.3	0.0	2.8	1.2	2.7
Sept. Oct. Nov. . .	16.4	4.0	1.9	1.9	5.7	7.2	3.3	1.3	0.4	1.9	0.6	2.8
Mean of Year.	22.7	7.5	1.7	1.2	7.7	4.8	6.7	0.3	3.0	5.2	3.0	3.1
14 hr. observations :	22.0	9.0	3.7	1.0	6.3	7.2	7.5	1.0	3.2	4.8	3.7	3.3
Dec. Jan. Feb. . .	27.5	18.8	14.0	2.5	8.8	12.2	14.0	3.8	4.7	10.8	3.5	4.6
Mar. April, May . .	28.7	16.7	12.8	0.3	16.5	11.0	13.2	1.3	6.5	4.3	5.0	4.5
June, July, Aug. . .	25.2	13.0	8.0	1.2	9.8	8.8	10.3	1.6	4.3	6.3	3.8	3.9
Sept. Oct. Nov. . .	14.3	1.5	1.0	0.8	1.8	2.5	3.3	0.3	1.2	4.8	2.0	2.7
Mean of Year.	21.7	4.0	1.3	1.3	4.5	4.5	3.0	1.3	3.7	4.2	3.5	3.0
21 hr. observations :	35.5	10.7	5.2	3.5	7.8	9.8	8.5	2.7	5.5	9.8	3.7	3.8
Dec. Jan. Feb. . .	27.7	4.0	1.2	0.5	2.2	9.0	3.5	1.3	5.5	5.3	3.5	3.1
Mar. April, May . .	24.3	5.0	2.2	1.5	4.6	6.4	4.6	1.4	4.0	6.0	3.2	3.1
June, July, Aug. . .	Mean of Year.											
Sept. Oct. Nov. . .												

(c) ENTEBBE

Per 100 Observations at each of the Hours 7, 14, and 21

JANUARY

	No. of winds per 100 observations of strength			Direction of strong winds						Average hourly velocity of wind.* m.p.h.		
	4·5	6·7	8·12	N.	NE.	E.	SE.	S.	SW.		W.	NW.
7 hr. .	5·0	1·5	0·0	0·5	0·0	0·5	0·0	1·5	0·5	3·5	0·0	2·3
14 hr. .	25·0	1·5	0·5	5·0	0·0	3·0	0·0	7·5	6·5	5·0	0·0	2·8
21 hr. .	2·0	0·5	0·0	0·5	0·0	0·0	0·0	0·5	0·5	1·0	0·0	2·5
Mean	11·0	1·2	0·2	2·0	0·0	1·2	0·0	3·2	2·5	3·2	0·0	2·5

FEBRUARY

7 hr. .	5-0	0-5	0-0	0-5	0-0	2-5	0-0	1-0	0-0	1-5	0-0	2-5
14 hr. .	13-5	2-5	1-0	2-0	0-0	5-0	0-0	0-0	4-0	5-5	0-5	2-7
21 hr. .	1-5	0-5	0-0	0-5	0-0	0-0	0-0	0-0	0-5	0-5	0-5	2-5
Mean	6-6	1-2	0-3	1-0	0-0	2-5	0-0	0-3	1-5	2-5	0-3	2-6

MARCH

7 hr. .	8-5	1-5	0-0	1-0	0-0	3-0	0-0	1-0	1-0	3-5	0-5	2-6
14 hr. .	14-5	10-0	0-5	2-5	0-0	5-5	0-0	3-0	11-0	3-0	0-0	2-7
21 hr. .	1-5	1-0	0-0	0-5	0-0	0-0	0-0	0-0	0-5	1-5	0-0	2-4
Mean	8-2	4-2	0-2	1-3	0-0	2-8	0-0	1-3	4-2	2-7	0-2	2-6

* 21 hr. to 7 hr. 7 hr. to 14 hr. 14 hr. to 21 hr. mean.

TABLE XXII (continued)

APRIL									
	No. of winds per 100 observations of strength			Direction of strong winds					Average hourly velocity of wind.* m.p.h.
	4.5	6.7	8.12	N.	NE.	E.	SE.	S.	
7 hr. .	7.5	2.5	0.0	1.5	0.0	0.5	0.5	1.5	2.3
14 hr. .	17.5	3.0	0.5	4.5	0.0	3.5	0.0	4.5	2.7
21 hr. .	1.5	1.5	0.0	0.5	0.0	0.0	0.5	1.0	2.3
Mean	8.8	2.3	0.2	2.2	0.0	1.3	0.3	2.3	2.4
MAY									
7 hr. .	4.5	1.5	0.0	0.0	0.0	1.0	0.0	1.0	2.2
14 hr. .	17.5	4.5	1.0	2.0	0.0	1.5	0.5	8.0	2.6
21 hr. .	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
Mean	7.5	2.0	0.3	0.7	0.0	0.8	0.2	3.0	2.3
JUNE									
7 hr. .	6.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	2.1
14 hr. .	19.5	3.5	0.5	0.5	0.0	2.5	2.0	7.5	2.5
21 hr. .	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1
Mean	9.0	1.2	0.2	0.2	0.0	1.2	0.8	2.7	2.2
JULY									
7 hr. .	6.5	1.0	0.5	0.5	0.0	2.0	0.5	1.0	2.1
14 hr. .	19.5	8.5	0.5	0.0	0.0	10.0	1.5	4.0	2.4
21 hr. .	2.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	2.2
Mean	9.3	3.3	0.3	0.2	0.0	4.2	0.7	1.7	2.2

AUGUST											
7 hr. .	7.5	2.5	0.5	1.0	1.0	2.0	0.5	0.5	2.0	3.5	0.0
14 hr. .	12.0	8.0	0.5	0.5	0.0	1.0	2.0	1.5	7.5	7.5	0.5
21 hr. .	4.5	1.0	0.0	2.5	0.0	1.5	0.0	0.0	0.5	1.0	0.0
Mean	8.0	3.8	0.3	1.3	0.3	1.5	0.8	0.7	3.3	4.0	0.2
SEPTEMBER											
7 hr. .	8.5	3.5	0.5	3.0	0.0	2.5	0.5	2.0	2.5	2.0	0.0
14 hr. .	18.5	6.5	1.0	1.5	0.0	2.0	0.0	7.0	4.0	11.5	0.0
21 hr. .	2.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Mean	9.7	3.3	0.5	1.8	0.0	1.5	0.2	3.0	2.5	4.5	0.0
OCTOBER											
7 hr. .	7.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5	1.0	3.0	0.0
14 hr. .	30.0	9.0	1.0	3.5	0.0	5.0	1.0	7.5	10.0	13.0	0.0
21 hr. .	8.5	2.0	0.0	2.0	0.0	0.0	0.0	1.5	3.5	3.5	0.0
Mean	15.2	4.2	0.3	2.3	0.0	2.2	0.3	3.5	4.8	6.5	0.0
NOVEMBER											
7 hr. .	9.0	0.5	0.0	2.5	0.0	1.5	0.5	0.5	2.0	2.5	0.0
14 hr. .	25.5	3.0	0.0	3.5	0.0	1.5	0.5	7.0	9.0	7.0	0.0
21 hr. .	2.0	2.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0
Mean	12.2	1.8	0.0	2.3	0.0	1.0	0.3	2.8	4.0	3.5	0.0
DECEMBER											
7 hr. .	8.0	2.5	0.0	3.5	0.5	2.0	0.0	0.0	1.5	3.0	0.0
14 hr. .	21.0	5.0	0.0	4.0	0.0	3.5	0.0	6.0	6.0	6.5	0.0
21 hr. .	4.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0	3.0	0.5	0.0
Mean	11.0	2.7	0.0	2.5	0.2	2.2	0.0	2.0	3.5	3.3	0.0

* 21 hr. to 7 hr. 7 hr. to 14 hr. 14 hr. to 21 hr. mean.

TABLE XXII (*continued*)

SEASONAL STRONG WINDS

No. of winds per 100 observations of strength			Direction of strong winds								Average hourly velocity of wind.* m.p.h.
4.5	6.7	8.12	N.	NE.	E.	SE.	S.	SW.	W.	NW.	
7 hr. observations :											
Dec. Jan. Feb. .											
Mar. April, May											
June, July, Aug.											
Sept. Oct. Nov. .											
Mean of Year.											
14 hr. observations :											
Dec. Jan. Feb. .											
Mar. April, May											
June, July, Aug.											
Sept. Oct. Nov. .											
Mean of Year.											
21 hr. observations :											
Dec. Jan. Feb. .											
Mar. April, May											
June, July, Aug.											
Sept. Oct. Nov. .											
Mean of Year.											

* 21 hr. to 7 hr. 7 hr. to 14 hr. 14 hr. to 21 hr. mean.

7 hr. observations :

Dec. Jan. Feb. .
 Mar. April, May
 June, July, Aug.
 Sept. Oct. Nov. .

Mean of Year.

14 hr. observations :

Dec. Jan. Feb. .
 Mar. April, May
 June, July, Aug.
 Sept. Oct. Nov. .

Mean of Year.

21 hr. observations :

Dec. Jan. Feb. .
 Mar. April, May
 June, July, Aug.
 Sept. Oct. Nov. .

Mean of Year.

(d) MASAKA

Per 100 Observations at each of the Hours 7, 14, and 21

JANUARY

	No. of winds per 100 observations of strength			Direction of strong winds								Average wind force (B.S.)
	4.5	6.7	8.12	N.	NE.	E.	SE.	S.	SW.	W.	NW.	
7 hr. .	4.0	2.0	0.0	0.5	1.5	3.0	0.5	0.5	0.0	0.0	0.0	1.8
14 hr. .	9.5	3.0	0.0	0.5	0.0	4.5	2.0	5.0	0.0	0.5	0.0	2.0
21 hr. .	6.0	0.5	0.0	2.0	0.0	0.0	0.0	2.0	1.5	1.0	0.0	1.7
Mean	6.5	1.8	0.0	1.0	0.5	2.5	0.8	2.5	0.5	0.5	0.0	1.8

FEBRUARY

7 hr. .	7.2	2.4	0.0	0.6	0.0	1.2	4.2	1.2	1.2	0.6	0.6
14 hr. .	12.0	1.8	0.0	0.0	0.0	2.4	4.2	4.2	0.0	3.0	0.0
21 hr. .	4.2	1.2	0.0	1.2	0.0	1.8	0.0	1.8	0.0	0.6	0.0
Mean	7.8	1.8	0.0	0.6	0.0	1.8	2.8	2.4	0.4	1.4	0.2

MARCH

7 hr. .	3.2	1.6	0.5	0.5	0.5	1.6	0.0	1.6	0.5	0.5	0.0
14 hr. .	17.3	2.7	0.0	0.0	0.5	4.9	6.5	8.1	0.0	0.0	0.0
21 hr. .	4.3	0.0	0.0	0.5	0.0	0.5	0.5	1.1	0.5	1.1	0.0
Mean	8.3	1.4	0.2	0.3	0.3	2.3	2.3	3.6	0.3	0.6	0.0

APRIL

7 hr. .	7.2	0.6	0.5	0.0	0.0	2.2	1.6	4.4	0.0	0.0	0.0
14 hr. .	7.7	0.5	0.0	0.0	0.6	2.7	3.3	1.1	0.0	0.5	0.0
21 hr. .	3.8	0.0	0.0	0.0	0.0	1.1	0.0	2.7	0.0	0.0	0.0
Mean	6.2	0.4	0.2	0.0	0.2	2.0	1.6	2.7	0.0	0.2	0.0

TABLE XXII (continued)

Per 100 Observations at each of the Hours 7, 14, and 21

MAY												
No. of winds per 100 observations of strength			Direction of strong winds						Average wind force (B.S.)			
4.5	6.7	8.12	N.	NE.	E.	SE.	S.	SW.	W.	NW.		
7.6	1.6	0.0	0.0	0.0	5.4	1.1	1.1	0.0	1.6	0.0	2.2	
6.5	0.0	0.0	0.0	0.0	1.6	1.6	2.7	0.0	0.5	0.0	2.1	
0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.7	
4.8	0.5	0.0	0.0	0.0	2.3	0.9	1.4	0.0	0.7	0.0	2.0	
JUNE												
1.6	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.1	0.0	0.0	1.7	
7.1	0.0	0.0	0.0	0.0	0.5	0.6	6.0	0.0	0.0	0.0	2.0	
1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	1.4	
3.3	0.0	0.0	0.0	0.0	0.2	0.4	2.4	0.4	0.0	0.0	1.7	
JULY												
1.1	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.0	0.0	1.7	
4.8	0.0	0.0	0.0	0.0	0.0	0.5	4.3	0.0	0.0	0.0	2.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	
2.0	0.0	0.0	0.0	0.0	0.2	0.4	1.4	0.0	0.0	0.0	1.7	
7 hr.												
14 hr.												
21 hr.												
Mean												
7 hr.												
14 hr.												
21 hr.												
Mean												

AUGUST												
7 hr.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
14 hr.	7.0	0.0	0.0	0.0	1.0	2.7	3.2	0.0	0.0	0.0	0.0	2.0
21 hr.	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Mean	2.5	0.0	0.0	0.2	0.0	0.3	0.9	1.1	0.0	0.0	0.0	1.7
SEPTEMBER												
7 hr.	0.6	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.5
14 hr.	6.0	0.6	0.0	0.0	0.0	0.6	1.1	4.9	0.0	0.0	0.0	1.9
21 hr.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Mean	2.2	0.2	0.0	0.0	0.0	0.4	0.4	1.6	0.0	0.0	0.0	1.6
OCTOBER												
7 hr.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
14 hr.	7.0	0.0	0.0	0.0	0.0	2.2	1.1	3.7	0.0	0.0	0.0	1.9
21 hr.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Mean	2.3	0.0	0.0	0.0	0.0	0.7	0.4	1.2	0.0	0.0	0.0	1.7
NOVEMBER												
7 hr.	2.2	0.6	0.0	1.1	0.6	0.0	0.0	0.0	0.0	1.1	0.0	1.6
14 hr.	8.8	1.1	0.0	0.0	0.5	3.3	0.6	5.0	0.0	0.5	0.0	2.0
21 hr.	2.2	0.6	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.7
Mean	4.4	0.8	0.0	0.9	0.4	1.1	0.2	1.7	0.0	0.9	0.0	1.8
DECEMBER												
7 hr.	1.3	0.0	0.0	0.0	0.0	0.6	0.0	0.7	0.0	0.0	0.0	1.5
14 hr.	9.8	1.3	0.0	1.3	0.0	2.0	0.6	7.2	0.0	0.0	0.0	2.0
21 hr.	5.2	0.0	0.0	2.6	0.0	0.0	0.0	0.6	0.0	0.7	1.3	1.6
Mean	5.4	0.4	0.0	1.3	0.0	0.9	0.2	2.8	0.0	0.2	0.4	1.7

TABLE XXII (continued)

SEASONAL STRONG WINDS

	No. of winds per 100 observations of strength			Direction of strong winds					Average wind force (B.S.)
	4-5	6-7	8-12	N.	NE.	E.	SE.	S.	
7 hr. observation :									
Dec. Jan. Feb. .	4.2	1.5	0.0	0.4	0.5	1.6	1.6	0.8	1.8
Mar. April, May .	6.0	1.3	0.3	0.2	0.2	3.1	0.9	2.4	2.2
June, July, Aug. .	0.9	0.0	0.0	0.0	0.0	0.2	0.4	0.0	1.7
Sept. Oct. Nov. .	0.9	0.2	0.0	0.4	0.2	0.2	0.0	0.0	1.6
Mean of Year.	3.0	0.7	0.1	0.2	0.2	1.3	0.7	0.8	1.8
14 hr. observation :									
Dec. Jan. Feb. .	10.5	2.0	0.0	0.6	0.0	3.0	2.2	5.5	2.1
Mar. April, May .	10.5	1.1	0.0	0.0	0.4	3.1	3.8	4.0	2.3
June, July, Aug. .	6.3	0.0	0.0	0.0	0.0	0.5	1.3	4.5	2.0
Sept. Oct. Nov. .	7.3	0.6	0.0	0.0	0.2	2.0	0.9	4.5	1.9
Mean of Year.	8.6	0.9	0.0	0.1	0.1	2.2	2.0	4.6	2.1
21 hr. observation :									
Dec. Jan. Feb. .	5.1	0.6	0.0	1.9	0.0	0.6	0.0	1.5	1.8
Mar. April, May .	2.9	0.0	0.0	0.2	0.0	0.5	0.2	1.4	1.8
June, July, Aug. .	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.4	1.5
Sept. Oct. Nov. .	0.7	0.2	0.0	0.5	0.0	0.0	0.0	0.0	1.5
Mean of Year.	2.3	0.2	0.0	0.7	0.0	0.3	0.05	0.8	1.6

APPENDIX II

POPULATION STATISTICS (1918)

BUGANDA

	<i>Europeans.</i>	<i>Asiatics.</i>	<i>Natives.</i>	<i>Total.</i>
Males	381	1,074	349,248	350,703
Females	176	401	439,838	440,415

EASTERN PROVINCE

Males	101	1,331	587,404	588,836	} + approx. 50,000 for Karamoja and Lobar.
Females	45	342	741,659	742,046	

WESTERN PROVINCE

Males	34	151	248,048	248,233
Females	24	68	294,418	294,510

NORTHERN PROVINCE

Males	63	103	220,557	220,723
Females	22	46	282,636	282,704

RUDOLF PROVINCE

Males	1	—	approx.	approx.
Females	—	—	100,000	100,000

Estimated Grand Total 3,318,170

BIRTH AND DEATH RATE PER 1,000 (for certain districts only)

	<i>Buganda.</i>	<i>Busoga.</i>	<i>Bunyoro.</i>	<i>Ankole.</i>	<i>Toro.</i>
Birth rate	12·79	42·17	14·50	24·74	28·77
Death rate	17·61	36·10	39·57	21·84	15·98

INDEX

Figures in heavy type indicate the page on which the fullest description will be found.

A

Abagombolola, 336
Abamasaza, 336, 372
Abemiruka, 329
Abia Ferry, 321
Abyssinia-Uganda
 boundary, 4
Abyssinian violet, 160
Abyssinians, 374
Acacias, 86, 152, 153,
 154, 157; scrub, 164
Acanthus arboreus, 154,
 156
Achole (or Gany) tribe,
 77, 81, 205, 206
Acholi district, 23, 93,
 152, 371
 cultivation, 238, 241
 live stock, 256
Achwa R., 70, 78
Adders, 171
Africa Order in Council
 (1889), 333
African bilberry, 161
African cedar, 160
Agaga R., 76, 79
*Agoro (or Imatong-
 Agora) Mts.*, 4, 12, 76,
 79, 80, 179, 180
Agricultural college, 296
*Agricultural Depart-
 ment*, 226, 236, 327,
 376
Agu, 25, 27, 274; com-
 munications, 274, 289,
 296, 304, 317
Agu, Mt., 4, 80
Agu-Sambwu canal,
 274
Air pressure, 103, 105.
See also Winds

Aiyu R., 3, 74
Aiyuge R., 71, 78
Ajia, 322
Aju, 299
Akaba, Gulf of, 8
Akol hills, 79, 80
*Albert, L. (Albert
 Nyanza)*, 2, 8-11,
 23, 24, 31, 36, 44,
 45, 51, 56-58, 61-
 70, 72, 77, 92, 97,
 102, 103, 187, 218,
 274, 278, 291, 295,
 300, 301, 304, 309,
 331, 367, 370
 escarpment, 63, 305
fauna, 172, 178-181,
 184
 fishing, 259
 fly area, 173
 insect pests, 173
 marine transport, 277,
 299-301, 326, 327,
 376
 physical geography,
 63-66
 storms, 64
*Albert Edward, L. : see
 Edward, L.*
Albertine Rift valley :
*see Western Rift
 valley*
Albizzia Brownei, 159
Alchemilla, 161
Alexandria, Mt., 58
Algaroba, 245
Alia Bay, 90
Alla R., 71, 73
Alpine vegetation, 160
Ambach, 61, 70, 71, 155,
 169
Amoji hills, 3

Amrun Falls, 6
Anau (or Atula) R., 71,
 73
*Anglo-German Agree-
 ment (1890)*, 355
Ankole district, 6, 11,
 38, 49, 96, 103, 151,
 189, 203, 218, 252,
 371
 birth and death rate,
 425
 cattle, 39
 climate, 40
 communications, 312
 cultivation, 225, 229,
 230, 234, 244
fauna, 164, 175-183
 fly area, 173
 forests, 40, 156, 159,
 247
 judicial system, 336
 land tenure, 341
 live stock, 250-254
 native industries, 259
 native kingdom of,
 12, 343, 360; agree-
 ments with, 363,
 370, 372, 373
 native organization,
 328-330
 pasture, 38, 39, 42
 people: *see* *Banyan-
 kole*
 physical features, 38-
 42
 rapids, 41
 vegetation, 153, 154
 water supply, 40, 42
Anophelines, 174
Antelopes, 163-167, 180
Antiaris toxicaria, 157
Ants, 174

Apes, 165
 Apolo Kagwa, Sir, 349, 355, 373
 Apples, 243
 Apule R., 83
 Arab traders, 274, 293, 343-346, 349, 350
 Arabia, trade with, 264
 Arenga R., 76, 79, 80
 Arju Mts., 72, 74
 Arua, 73, 322
 Asiatic population : statistics, 425
 Ass, wild, 177
 Assua camp, 299
 Assua (Aswa) R., 3, 10, 24, 25, 72, 74-79, 81, 108, 321
 Aswa R. : *see* Assua R.
 Atchu R., 71, 73
 Atula R. : *see* Anau R.
 Atura (or Foweira), 275
 communications, 275
 port, 22, 23, 25, 275
 Atura Ferry, 275, 320
 Atura R., 320
 Austria-Hungary, trade with, 264

B

Baamba tribe, 189
 Babira tribe, 188
 Baboons, 163, 165
 Badama tribe, 208
 Baganda people, 1, 166, 178, 190, 229, 259, 337, 345, 364, 365, 368-370
 Bagarra, 172
 Bagesu : *see* Bagishu tribe
 Bagishu (Bagesu) tribe, 29, 189, 193, 373
 Bagwe I., 35
 Bagweri tribe, 194
 Bahima tribe, 199, 203, 331. *See also* Hima tribe
 Bahiru (Bairo) tribe, 199, 203
 Bahr el Jebel district :
 flora, 153 ; physical features, 69-75

Bahr el Jebel (or Mountain R.), 3, 8-10, 12, 23, 44, 45, 63, 66, 76-81 ; navigation, 69
 Bahr el Jebel valley, 72
 Bahuta tribe, 330
 Baikoea Eminii, 157
 Bairo : *see* Bahiru tribe
 Bakeni tribe, 26, 189, 195
 Baker (or Luku), Mt., 55, 58-60, 73, 100
 Baker, Sir Samuel, 344, 365
 Bakiga tribe, 189, 373
 Bakonjo tribe, 189, 196
 Bakopi (peasantry), 346
 Bakova, 323
 Balala swamp, 71, 78
Balanites aegyptiaca, 153
Balanites Wilsoniana, 159, 245, 246
 Balatila, 307
 Balegenyi tribe, 197
 Bamboo, 29, 60, 79, 152, 156, 158, 160 ; forests, 160, 164, 167
 Bambuba tribe, 188
Bamuegira, 246
 Banana, 29, 156, 194, 224, 225, 228-230 ; plantations, 40, 68, 229, 286
 Banjako I., 17
 Banking, 269-270
 Bantu languages, 199
 Bantu tribes, 185, 186, 189-199, 337. *See also* Hamitic-Bantu tribes
 Banyankole tribe, 199, 203
 Banyoro tribe, 199, 200, 216, 259, 344, 345
 Banyuli tribe, 197
 Barbel, 172
 Bari country, 108, 371
 language, 209
 Bari tribe, 186, 208
 Baringo district, 84, 371
 Baringo, L., 102, 105
 Bark-cloth making, 270, 279
 Basket - weaving, 270, 279

Basoga tribe, 189, 197, 229
 Basso Narlok (Black Lake), 90
 Batambogwe, 245
 Bats, 167
 Batusi tribe, 330
 Batwa tribe, 43, 188, 330, 373
 Beans, 188, 225, 230, 233, 243
 Bee-eaters, 171
 Beer, 198, 202, 214, 225, 229
 Bees, 257
 Beeswax, 257
 Beetles, 174
 Beisa, 180
 Belgian Congo, 2, 45-47, 301, 302, 305, 373 ; trade with, 265, 269, 278, 291
 Belgium, trade with, 263, 264
 Bellefonds, Linant de, 345
 Beni, 61
 Berarara (or Ntungwe) R., 41-44, 48, 49
 Berber tribe, 185
 Berkeley Bay, 5, 17, 20
 Berlin (Congo) Act (1885), 355
 Birds, 163, 167-171
 Birikani, 323
 Bishop-birds, 170
 Bisini R., 274
 Blackberries, 161
 Black Lake : *see* Basso Narok
 Blackwater fever, 218, 219, 287
 Boa, 276, 306, 307
 Boll-worm, 238
 Bombo, 270, 276, 335 ; communications, 276, 285, 305, 306
 Bongo, 160, 164, 167, 181
 Boring beetles, 236
 Borites, 338
 Boroli, 321
 Boya hills, 85

- Brambles, 161
 Bread-fruit, 243
 Bream, 172
 Brickfields, 288
 British Cotton Association, 276
 British East Africa, 205, 208, 218, 221, 228, 236, 250, 272, 305, 326, 338, 371, 376, 377; trade with, 255, 257, 268; Uganda boundary, 5, 151
 British East Africa Corporation, 276, 280, 283, 288, 290-292
 Buama, 309
 Bubonic plague, 221
 Bucks, 163, 165, 167
 Buckwheat, 233
 Buddu, 36-38, 177, 178, 248, 358, 367, 368; south, 32, 157, 158
 Budo, 306
 Budongo Forest, 67, 68, 118, 156-158, 176, 244, 246-250
 Buffalo, 52, 163, 164, 166, 177
 Buffalo hides, 258
 Bufumbiro, 47-48
 Bufundi, 314
 Bugaia I., 20
 Bugala I., 17
 Buganda, kingdom and province of, 1, 10, 12, 21, 31, 56, 93, 151, 189, 190, 216, 218, 219, 252, 256, 328, 343-348, 350, 352, 353, 355, 357
 administrative divisions, 332, 371
 animal products, 257
 area, 328
 birth and death rate, 425
 communications, 306
 cultivation, 224-226, 229-231, 235, 238, 239, 241-243
 education, 216
 fauna, 164, 166, 175-177, 180, 182, 183
 flora, 153, 154
 forests, 37
 history, 343
 judicial system, 335-336
 labour, 271-273
 land tenure, 341
 live stock, 250-254
 mineral products, 260
 native administration, 328, 329
 physical features, 31-38
 people: *see* Baganda
 population, 425
 products, 33
 savannah, 224
 topography, 11
 Buganda Agreement (Allotment and Survey) (1913), 372
 Buganda Agreement (Native Laws) (1910), 372
 Buganga, 309
 Bugangadzi, 153
 Bugerere, *saza* of, 33, 155
 Bugishu, 27-29, 197, 235, 243
 Bugoma Channel, 17
 Bugoma Forest, 66, 156, 158, 176, 244, 246-249
 Bugondo, 27, 276
 communications, 276, 304, 305, 318
 port, 276, 318
 Bugonja Ferry, 307
 Bugungu, 173, 286
 Buhwezu district, 39
 Buhwezu Mts., 40
 Building-stone, 260
 Bujenji, 319
 Bujoko, 310
 Bujuku, L., 59
 Bujuku R., 59
 valley, 101
 Buka Bay, 18
 Bukakata, 17, 37, 277
 communications, 277, 290, 303, 304, 307
 port, 277
 Bukanga, 6
 Bukagara, 312
 Bukara R., 39
 Bukassa Ziba, 307
 Bukatira, 307
 Bukedi Cotton Company, 276
 Bukedi district, 12, 24, 28, 96, 164, 193, 343, 371, 373
 communications, 283, 292, 316
 cultivation, 225, 226, 230, 233, 237, 238-240, 242, 263
 fauna, 177
 live stock, 253, 254
 native organization, 331, 332
 vegetation, 153, 155
 Bukedi plain, 28-30
 Bukiga ridge, 28
 Bukoba, 15, 307; climate, 106, 107, 145, 379-389, 394-405, 409
 Bukora (*or* Kibali) R., 17, 37, 38
 Bukumi, 277, 291, 305, 309, 319, 320
 Bulamwezi, 34
 Bulangira, 316
 Bulbuls, 171
 Bulegenyi, 316
 Bulindi, 319
 Bulingugwe I., 353, 358
 Bullock transport, 280, 289, 292
 Bulo, 310
 Bulo (millet), 239
 Bululu, 25, 27
 Bunyoni, L., 42, 43, 48, 188, 314
 Bunyoro district, 11, 12, 23, 31, 56, 57, 96, 151, 157, 189, 190, 199, 221, 281, 291, 343-345, 358, 371
 animal reserve, 164
 birth and death rate, 425
 climate, 68
 communications, 319

- Bunyoro district (*cont.*):
 cultivation, 68, 229, 235, 239, 242
 fauna, 164, 166, 175, 176, 182, 183
 flora, 153, 154
 forests, 67
 judicial system, 336
 land ownership, 342
 live stock, 250-252
 mineral products, 260
 native kingdom, 12, 365, 366, 370
 native organization, 291, 328, 331
 people: *see* Banyoro
 physical features, 66-69
 vegetation, 155
 Bunyoro War, 365-367
 Bunyuli, 316
 Buramma, Mt., 42
 Buruli, 34
 Busagara, 348
 Busaiga, 312
 Busamu, 20
 Busesa, 309
 Bush buck, 163, 165, 181
 Bush pig, 167, 182
 Busi, 310
 Busi I., 17
 Busia, 5, 315
 Busiro, 310
 Busiu, 315
 Busoga district, 11, 12, 21, 25, 26, 96, 218, 245, 252, 326, 343, 348, 361, 371
 birth and death rate, 425
 communications, 314
 cultivation, 224, 225, 227-231 234, 240, 242, 262, 264
 fauna, 181, 182, 183
 forests, 156, 249
 land ownership, 342
 live stock, 253, 254, 256
 mineral products, 260
 native organization, 331-332
 people: *see* Basoga
 physical features, 30, 31
 Busoga Ferry, 316
 Busoga Railway, 19, 262, 280, 282, 285, 292, 294, 295, 300, 302, 304, 315, 376, 377; revenue and expenditure, 339
 Busoga Railway Marine, 245, 284, 295, 296, 300, 301, 317, 319
 Busongora, 343
 Busowa, 307
 Bustard, lesser, 169
 Busuju, 33, 35
 Busungwe I., 16, 244
 Butagu valley, 60
 Butaleja, 292, 316
 Butambala, 310
 Butara, 311
 Butiaba, 64-66, 68, 116, 223, 277
 climate, 117, 379, 388-395
 communications, 277, 281, 299, 300, 302, 304, 320
 Butiabwa: *see* Butiaba
 Butiru, 316
 Butiti, 311
 Butoro, 310
 Butter, 257
 Butterflies, 175
 Butumbi, 173
 Buvuma Channel, 19
 Buvuma I., 19, 20, 345
 Buvuma Is., 15, 360
 Buyaga, 31, 56, 153
 Buzzard, steppe, 168
 Bwavu, 307
 Bwekula, 153
 Bwevali, 320
 Bweya, 310
 Bwezu, 159
 Bwiro, 26, 27
Bycanistes subquadratus, 170
- C
- Cabbage, 243
 Cables, 305
 Cacao, 231-233, 241
 Cacao-fruit fly, 234
 Calf-skins, 258, 262
 Camels, 86, 251, 255, 314, 338
 Camps, 299, 314-316, 319, 322-324. *See also* Rest camps
Candelabra euphorbia, 154
 Canoes and canoe traffic, 274, 275, 279, 282, 292, 296, 310
 Cape gooseberry, 243
 Caracal, 166
Carapa sp., 157, 159, 246
 Caravan routes, 24, 29, 81
 Carnivora, 183
 Carrier Corps, 271
 tracks, 302, 303, 312
 Carrot, wild, 161
Cassava (manioc), 225, 228, 230, 234
 Castor-oil, 228, 234
 Cat: domestic, 256; serval, 166; servaline, 166; wild, 166, 256
 Caterpillar pest, 242
 Catfish, 172
 Cattle, 83, 84, 86, 200, 204, 224, 250, 251-253; statistics, 253
 Cattle disease, 174, 252
 Cauliflower, 243
 Caves, 29, 30, 98
 Ceara rubber, 240
 Central Province districts, 371
 Cereals, 232
 Cerebro-spinal meningitis, 222
Cerototheca sesamoides, 241
Chague, 299
 Chagwe: *see* Kiagwe
 Chameleon, 171
 Cha Nino Gongga, Mt., 46, 47
 Chat, African, 171
 Cheetah, 184
 Chemorongi Mts.: *see* Langatelio Mts.

- Chevrotain, or mouse-deer, 167
 Chiambura R., 40
 Chiasimbe Point, 16
 Chibak R., 84
 Chillies, 150, 224, 232, 262, 264, 283, 338
 Chimpanzee, 163, 165, 175
 China-clay, 260
 Chinchiza R., 7
 Chiope, 153
 Chombo R.: *see* Ka-henji R.
 Christianity, 192, 193, 198, 203, 346-351, 353, 354
 Chua: *see* Daudi Chua
 Chua district, 12, 75, 76, 80, 152, 289, 340, 331, 371
 cultivation, 234
 fauna, 179-182
 live stock, 253-256
 physical features, 79
 Chudi-Chudi, 84. *See also* Tshudi-Tshudi
 Chui R., 316
 Chukarongo, L.: *see* Kikarongo, L.
 Church Missionary Society, 32, 215, 216, 222, 345, 361; hospital, 287; schools, 279-283, 285, 286, 288, 293, 294, 296
 Churchizi, 330
 Cicatrization, 203
 Civet cat, 166
Clitandra orientalis, 157, 158, 240
 Cloud, 396-397
 Cob, Uganda, 165, 167, 179
 Cobra, 171
 Cockroaches, 175
 Cocoa, 227, 262, 264
Coffea robusta, 150, 158
 Coffee, 224, 226-228, 230-232, 235-236, 241, 262, 263, 270, 288
 Coffee-beetle, 236
 Coffee-leaf disease, 228
 Coffee pests, 236
Cola cordifolia, 159
 Collies, 171
 Colobus, 163, 166
 Colville, Colonel, 363, 364, 366
 Commissioners, district and provincial, 327, 328
 Congo Forest, 45, 58, 61, 155; fauna, 167
 Congo Free State, 360, 367
 Congo pea: *see* *Dhal*
 Congo R., 188
 Congo-Nile watershed, 3, 73-75
 Congo-Uganda boundary, 2
 Conifer, 157, 158, 160
 Coot, crested, 169
 Copper, 260
Cordia abyssinica, 154, 159
 Coreopsis, 154
 Cormorants, 169
 Cotton and the cotton industry, 10, 25, 28, 31, 225, 226, 228, 230-232, 236-238, 241, 261-263, 271, 275, 276, 279, 283, 289, 291, 297, 315, 317, 318, 327, 376, 377
 Cotton-aphis, 238
 Cotton-ginning, 270, 279, 283
 Cotton-pests, 238
 Cotton-seed, 228, 232, 238, 262, 263, 276, 279, 283
 Cotton-stainers, 238
 Courts Ordinance (1911), 373
 Cowrie shells, 338
 Cows, 194, 200, 202, 205, 251, 252
 Crane: crested, 170; crowned, 165
 Crater lakes, 53, 54, 56, 99
 Crickets, 174, 234
 Crocodiles, 23, 171
 Crops, acreage, 230-231
 Crown lands, 340-342
 Custard-apple, 243
Cutch, 245
 Cut-worms, 238
- ## D
- Dabossa district, 12, 87, 371
Dactylopetalum ugandense, 159
 Dadinga district, 371
 Dagusi I., 20
 Dagusi Passage, 20
 Dairy produce, 257
 Damba Channel, 18
 Damba I., 18
 Danze, 310
 Darters, 169
 Date, wild, 152, 153, 156
 Daudi Chua, *Kabaka* of Buganda, 367, 373
Darvea ugandensis, 159
 Debasien, Mt., 12, 79, 81, 82, 85, 99, 160, 164, 176, 182
 Dei Creek, 3, 66
 Dengue fever, 174
Dhal, or Congo pea, 230, 238
 Dik-dik, 164; large snouted, 179
 Diseases, 218-220, 372
 Dispensaries, 223
Dissotis, 155
 Dodinga hills, 85
 Dodosi country, 81, 83, 84
 Dodosi hills, 76
 Dodosi plateau, 84, 85
 Dog-fly, 174
 Dogs, 256
 Dom palm, 152
Dombeya runsorensis, 160
 Donkeys, 86, 255, 338
 Doves, 169
 Draecenas, 156, 159
 Ducks, 169
 Dueru: *see* George, L.
 Dufile, 70-74, 78

- Duiker : Abyssinian, 178 ; bush, 178 ; forest, 164 ; little, 167 ; Uganda blue, 178 ; Uganda red, 178
 Dutch East Indies, trade with, 268
 Dysentery, 219
- E**
- Eagle : Bateleur, 168 ; black-crested, 168
 Eagle owl, 168 ; spotted, 168
 Earthquakes, 94
 East Coast fever, 252
 Eastern Province, 12, 251, 252, 337, 340, 373, 376
 administrative divisions, 331, 332
 area, 331
 communications, 314, 377
 cultivation, 224-226, 229-231, 237, 239, 241
 districts, 371
 education, 216
 labour, 271-273
 live stock, 253, 254, 256
 loans to, 377
 population, 425
 Eastern (or Great or Main) Rift valley, 4, 8-10, 12; 75, 76 ; physical geography, 84-89
 Ebijo, Mt., 3
 Ebony, 338
 Edward (Albert Edward), L., 2, 8, 9, 11, 38-48, 52, 55, 57, 58, 61, 63, 96, 99, 102, 156, 259, 260 ; physical geography, 48-51
 Edward, L., district : fauna, 164, 170, 172, 177-180, 183
 flora, 154
 fly area, 173
 forests, 156
 insect pests, 173
 Edwin Arnold, Mt. : *see* Kabuga, Mt.
 Egrets, white, 169
 Egypt, 365 ; trade with, 263, 264
 Ekirikiti, 154, 156
 Eland, 167, 181 ; giant, 164
 Eldama Ravine, 368, 375, 376
 Elengua, Mt., 74
 Elephant, 52, 62, 163-166, 175
 Elephant grass (*matete*), 31-3, 36, 56, 57, 61, 67, 151, 154, 163, 164, 167
 Elephant ivory, 258
 Elgon, Mt., 5, 10, 12, 14, 24, 25, 27-30, 81, 84, 85, 92, 94, 96-98, 102, 109, 151, 155, 160, 186, 189, 193, 197, 251 ; caves, 29, 30, 193 ; crater, 162
 Elgon, Mt., district, 164, 371
 cultivation, 225, 229, 239, 243
 fauna, 164, 166, 167, 169, 175, 176, 178, 180-184
 forests, 156
 El Molo (or South Island), 90
 Embovu, 172
 Embwa fly, 222
 Emerald moss, 161
 Emin, Mt., 58, 59, 60
 Emin Pasha, 65, 352, 355, 358, 360, 365
 Emin Pasha Relief Expedition, 351
 Ensonzi, 172
 Entebbe, 1, 15, 18, 32, 35, 36, 220, 223, 259, 260, 269, 270, 278-279, 335, 340
 animal products, 257
 climate, 106, 107, 120, 136, 379-405, 408, 417-419
 communications, 276, 278, 281, 282, 285, 289, 291-293, 295, 298, 300, 304-306, 308-310
 cultivation, 229-231, 233, 234, 239, 240, 242
 live stock, 253, 254
 port, 278
 Entebbe district, 371
 Entebbe-Masaka road, 244
Entandrophragma sp., 244, 246
 Etuli R. : *see* Semliki R.
Eugenia owariensis, 157, 158
 Europeans : diseases of, 218-220 ; population, 425
- F**
- Fajao (Pajao), 23, 24, 68, 301
 Fan palm : *see* Palmyra palm
 Fatiko Mts., 115, 152
 Fatiko (Patiko) plateau, 77, 78,
 Feathers, 165
 Ferns, 156, 161
 Fever-tick, 175
 Fibre, 250
 Fielding Bay, 19
 Figs, 154
 Filaria, 174
 Fish and fishing, 33, 172, 259, 278, 279, 283
 Fish eagle, 168
 'Flame of the Forest,' 154
 Flies, 174. *See also* Tsetse fly and other specific names
 Flour, 262
 Flour mill, 244
 Fly-catcher, 171
 Fodder, 233
 Fola Falls, 74
 Foot and mouth disease, 252

- Foreign Jurisdiction Act (1890), 325, 333
 Forest hog, 183
 Forest Ordinances, 245
 Forests, 11, 29, 31-33, 37, 60, 61, 86, 102, 105, 150, 155-162, 341, 372
 forest products, 244-250
 list of principal trees, 246-250
 Fort Berkeley, 301
 Fort Portal, 35, 36, 54-56, 62, 63, 99, 223, 243, 270, 279
 climate, 119, 379-406, 410-413
 communications, 278, 279, 281, 286, 293, 295, 302, 304, 305, 311-313, 320
 Foweira (Paoera), 23, 68, 78, 301. *See* Atura
 Fowl, 256
 France, trade with, 263-265
 Francolin, 169
 Fruit, 243, 250
 Fruit-fly, 236
 Fumbia, Mt., 68
Funtumia elastica, 158
 Fur, 166, 175
- G**
- Gabunga* (Lord High Admiral), 347
 Gad-fly, 174
 Gadein Morbi, 299
 Galla tribe, 185, 200
Gallirex johnstoni, 170
 Game, 163-165, 322, 323; list of big game, 175-184
 Game Ordinance (1913), 165
 Gany: *see* Achole tribe
 Gayaza, 306
 Gazelle, 165, 167; Grant's, 180
 Gedge, L., 24, 27, 82, 164, 259
 Gedge, Mr., 355
 George (*or* Dueru), L., 11, 36, 38, 40, 44, 48, 50-55, 57, 259
 fauna, 164, 172, 176, 179, 181, 182
 flora, 154, 155
 fly area, 173
 insect pests, 173
 Gerbils, 167
 German East Africa, 352. *See also* Tanganyika Territory
 Germany and Uganda, 351-356, 373; trade between, 263, 264, 268
 Gessi, Mt., 58, 60
 Ghee, 258, 262, 277
 Giant bulrush, 155
 Giant pig, 164
 Gineries, 237, 262, 274, 275, 280, 283, 284, 287-289, 292, 297, 318
 Giraffes, 164, 165, 167, 182
 Giskio, Mt., 2
 Glaciers, 59, 60, 101
Glossina, 283
 Goanese traders, 269, 279, 290
 Goats, 84, 86, 166, 250, 251, 254; goat-skins, 258, 262
 Gobera, 310
 Gogonya, 280
 communications, 280, 296, 317
 port, 280
 Gold, 260
 Gombe, 310
Gombolola county divisions, 329; chiefs, 329, 330, 331
 Gondokoro, 69, 75, 278, 281, 285, 291, 344, 371
Gonga, *or* sweet banana, 229
 Gonorrhœa, 221
 Goose: Nile, 169; pygmy, 169
 Gordon, Mr., Protestant missionary, 345, 346, 348, 349
 Gorilla, 165
 Government stations, 283, 284, 286, 289, 295, 305
 Government Transport Department, 304, 311
 Governor, powers of the, 325-326, 328
 Grain, 84, 86
 Granite, 96
 Graphite, 260
 Grass, 152-154
 Grasshoppers, 238
 Great Britain: *see* United Kingdom
 Great Lakes, 94
 valley, 8
 Great Rift valley: *see* Eastern Rift valley
 Griffon, African, 168
 Ground-dove, 169
 Ground-nuts, 224, 225, 228, 230, 232, 239, 241, 262
 Grounsels, 161, 162
Guava, 243
 Guereza, 166
 Guinea-fowl, 168; wild, 238
 Guinea-worm, 289
 Gule, Mt., 4, 80
 Gulls, 169
 Gulu district, 12, 23, 69, 75, 223, 331, 340, 371
 climate, 114, 118, 379-395
 communications, 321
 fauna, 177, 179
 live stock, 253, 254
 native industries, 259
 physical features, 77-79
 Gulu station, 79, 280-281, 379; communications, 280, 288, 291, 319-321
 Gum copal, 338
 Gum tax, 370, 372
Gwabuzito, 246

H

Hamali carts, 319
 'Hamitic' race, 199, 343
 Hamitic-Bantu tribes,
 185, 186, 189, 190,
 199-205
 Hanlon, Bishop, 364
 Hannington, Bishop,
 348, 356
 Hare, 167
 Harogo, Mt., 4
 Hartebeest, 165; Coke
 (or Kongoni), 177;
 Jackson's, 178;
 Uganda, 177
 Helichrysus, 161
 Hemlock, 161
 Herons, 169, 170
 Hides, 165, 251, 257,
 262, 264, 275, 277,
 303, 338
 Hima R., 54, 312; fly
 area, 173
 Hima (Bahima) tribe,
 185, 200, 203
 Hippopotamus, 163,
 183; teeth, 258, 262,
 338
 Hirth, Bishop, 358
 Hoima, 56, 65, 68, 223,
 260, 281, 331
 climate, 118, 119, 379,
 388-395
 communications, 277-
 279, 281, 285, 286,
 291, 295, 305, 311,
 319, 320
 Hoima district: cul-
 tivation, 230, 231,
 234, 242
 live stock, 253, 254
 native industries, 259,
 271
 Hoima Road, 310
 Holland, trade with, 263,
 264, 268
 Honey-guides, 171
 Hornbills, 170
 Horns, 165
 Horses, 255, 338
 Hospitals, 222, 276, 280,
 281, 283, 287, 327

Hot springs, 65
 Humidity, 394-395
 Hunting dog, 166
 Hut tax, 370, 372, 375,
 376
 Hyaena, spotted, 166
 Hyrax, 166

I

Ibanda, 311
 Ibis, 168; glossy, 169;
 sacred, 170
 Iganga, 31, 223, 282;
 communications, 278,
 282, 285, 289, 292,
 304, 305, 314
 Ihunga, Mt., 42
 Iki Iki, 316
 Ilala, Mt., 4, 80
 Imatong-Agora Mts.:
 see Agoro Mts.
 Impala, 163, 167, 180
 Imperial British East
 Africa Company, 340,
 351-353, 356-361, 375
 Imperial loans, 376,
 377
 Incense-tree, 154, 157
 India, trade with, 262,
 264, 265, 268
 Indian bazaars, 283,
 286, 293-295
 labour, 270, 271, 273
 population, 269, 275
 traders, 269, 274, 279,
 290
 troops, 368, 369, 375
 Indian corn, 230
 Indian Ocean, 9
 Indian Penal Code, 333,
 335
 Industrial training, 215,
 217
 Influenza, 222
 Insect pests, 172-175,
 234, 236, 238
 Iron manufacture, 271
 Iron-ore, 202, 259
 Ironwood: see *Muhindi*
 Irumu, 302
 Ishasha R., 2, 42-44, 49
 Isunga, 311

Italian East Africa, trade
 with, 264
 Italy, trade with, 263,
 264
 Itoga, 312
 Ituri Forest, 2, 61, 64
 Ivory, 176, 259, 262, 265,
 293, 338, 366

J

Jackal, 166
 Jackson, F. J., 351, 352,
 353, 354, 355, 368
 Jaggree, 262
 Jiggers, or sand-fleas,
 175, 222
 Jinja, 15, 19-22, 30, 31,
 33, 220, 223, 259,
 269, 270, 282-284,
 332, 335, 339
 climate, 108, 133, 379-
 405
 communications, 282,
 285, 289, 292, 295,
 300-302, 304, 305,
 307, 314, 317
 port, 282
 railway to Namasa-
 gali, 282, 339
 Jinja Bay, 19
 Jinricksha, 278
 Jiwa tribe, 324
 Jiwe (or Tororo), Mt.,
 83; fauna, 164, 177,
 178, 180-182
 Jiwe country, 83
 Jiwe tribe, 83
 Jiwe-Karamojo-Dodosi
 plateau, 85
 Joge, 246
 Johnston, Sir H. H.,
 363; special commis-
 sion of, 369-370
 Juma, 365
 Junda, 307
 Juniper, 29

K

Kabaka, the, 328, 329,
 336, 344, 370, 372
 Kabala, 36

- Kabale, 42, **284**; communications, 284, 286, 293, 305, 313, 314
 Kabarega (chief), 360, 365-369
 Kabasanda, 310
 Kabira Forest, 246
 Kabiramaido, **284**, 318
 Kabokasa, 309
 Kaboyo, 307
 Kabuga (*or* Edwin Arnold), Mt., 53, 55
 Kabula, 38
 Kabwoko, 308
 Kachakalo, Mt., 83
 Kachira, L., 37, 38
 Kachung, **284**.
 communications, 284, 289, 318
 port, 218, 284
 Kadomera, Mt., 3
 Kafaru: *see* Kazinga channel
 Kafu Ferry, 291, 320
 Kafu R., 22, 31, 34, 35, 66-68, 172, 259, 301, 306-308, 369
 Kagadi, 295, 309
 Kagamba, 314
 Kagando, 312
 Kagera R., 6, 7, 13, 16, 37, 39, 41, 244
 Kagera valley, 93
 Kagoro, 311
 Kagorugoru, 311
 Kagoto, L.: *see* Nkuguti, L.
 Kagwalas hills, 86
 Kahangi, 311
 Kahlenji (*or* Chombo) R., 44
 Kaia R., 3, 74
 Kainja's, 316
 Kaiserin Mts., 4, 89
 Kaisi R., 49
 Kajura, 260
 Kakindu, 282, 305
 Kakiri, 310
 Kakitumba R., 6, 7, 41
 Kako R.: *see* Ruchuru R.
 Kakumiro, 308, 309
 Kakumiro district: *see* Mubendi
 Kalagala Wabunaza, 307
 Kalaki, **285**; communications, 285, 304, 318
 Kalapata, Mt., 83
 Kalasa, 307
 Kalinzu Forest, 40
 Kaliro, **285**; communications, 285, 304, 315
 Kalule, 307
 Kamalinga, Mt., 12, 79, 82
 Kamengo, 309
 Kamoda, L., 24, 26
 Kamolo, 323
 Kampala (*or* Mengo), 18, 32-37, 219, 221, 223, 233, 235, 257, 264, 269, 270, **285-288**, 326, 327, 335, 337, 339, 357, 358, 365
 climate, 106, 140, 379-395
 communications, 278-282, 285, 289-292, 295-297, 300, 304-306, 308-311, 320
 hills, 286, 287, 356
 industries, 257, 264, 287-288
 institutions, 287
 mission stations, 287
 plantations, 264, 286
 railway to Port Bell (Victoria Nyanza), 300, 377; projected line to Lake Albert, 309
 Kamrasi, *Kabaka* of Buganda, 344
 Kamule, 31, **288**; communications, 288, 294, 304, 315
 Kanalyeru, 307
 Kandeke R., 39
 Kaniamagogo swamp, 42
 Kansori Falls, 6
 Kanyambarara, 312
 Kanyamwongo (*or* Kikuhuri), Mt., 49
 Kapeka, 310
 Kapeta R.: *see* Zamuge R.
 Karagwe, 96, 178
 Karagwe Mts., 6
 Karama, 320
 Karamoja district, 331, 337, 371, 374
 fauna, 164, 168, 177, 180, 181, 183
 live stock, 250, 251, 253, 254
 Karamoja plateau, 29, 76, 79, 81, 82, 85
 Karamoja R., 86
 Karamoja tribe, 186, 213
 Karema, *Kabaka* of Buganda, 350
 Karence, L., 41, 44
 Karisimbi, Mt., 46, 99
 Karuma Rapids, 23
 Karungu, 5
 Kasagama (chief), 360, 373
 Kasanja, 310
 Kasenji (*or* Kasenyi), 64, 301, 302
 Kasese, 312
 Kasinde, 312
 Kasingi, L., 260
Kasisa, 246
 Kasodo-Saka Ferry, 316
 Kasuku, 310
 Kasunju Mts., 40
 Kaswachief, treaty with, 363
 Kasyoha forests, 40
 Katende, 310
Katikiro (prime minister), 328, 329, 330, 344
 Katonga R., 17, 35-37, 177, 308, 309
 Katunguru, 312
 Katunguru Ferry, 312
 Katwe, 99, 293, 313
 Katwe Bay, 50, 51
 Katwe, L., 50, 51; salt deposits, 260, 312, 313
 Kavallis, 357, 360; treaty with chief, 363
 Kavirondo country, 5, 31, 181, 376

- Kavirondo Gulf, 5, 13,
 14, 20
 Kavirondo people, 337
 Kayonsa, 6, 43, 330
 Kayonsa Forest, 156, 159
 Kazara district, 41
 Kazinga (or Kafaru)
 Channel, 40, 44, 51-
 53; fly area, 173
 Kelle, 284, 318
 Kenya, 97-100
 Kenya Colony: *see* Brit-
 ish East Africa
 Kerut R.: *see* Wei Wei R.
 Khor Atappi, 76
 Kiagwe (Chagwe), 33
 fauna, 177
 forests, 32, 156, 157,
 186, 250
 plantations, 228, 241
 Kiambura R., 51
 Kianja, 307
 Kiasimbi, 290
 Kibale, 244, 309, 311
 Kibale (or Muhombo)
 Forest, 55, 156, 158,
 244, 246-248
 Kibali R.: *see* Bukora
 R.
 Kibalinga, 308, 309
 Kibanga Port, 18, 288,
 306
 Kibero, 65, 68
 Kibibi, 310
 Kibimba R., 36
 Kibish (or Sacchi) R., 90
 Kiboko (or Kilim) R.,
 28, 29, 81
 Kibuye, 32
 Kichunda, 309
 Kichwamba, 40, 99
 Kichwamba, Mt., 51
 Kideppo R., 4, 81
 Kiganwa, 308
 Kigarama, 312
 Kigaya, 320
 Kigerobva, 320
 Kigezi district, 12, 41,
 49, 160, 173, 189
 bamboo forest, 43
 climate, 44
 communications, 303,
 313
 cultivation, 42, 230,
 233, 238, 242, 243
 fauna, 165, 176, 178,
 181, 182
 live stock, 253, 254
 native industries, 259
 native organization
 329, 330
 physical features, 42-
 44
 vegetation, 153, 154
 Kigulya, Mt., 68
 Kigumba, 319, 320
 Kijanebalola, L., 37, 38
 Kijongo, L., 55, 56
 Kikamulo, 307
 Kikarongo (Chukaron-
 go), L., 52
 Kikeri, L., 183
 Kikorongo, 312
 Kikuhuri: *see* Kanyam-
 wongo Mt.
 Kikuyu, 375
 Kilaki, 297
 Kilim, 29, 322
 Kilim R.: *see* Kiboko R.
 Kilimanjaro, Mt., 99, 351
 Kilimi, 316
 Kilo gold-mines, 64,
 280, 302
 Kingfishers, 170
 King's African Rifles
 (4th battalion), 326,
 335
 Kioga, L., 10, 12, 22, 23,
 25-28, 30, 31, 33,
 34, 81, 92, 93, 97,
 102, 194, 218, 226,
 239, 259, 274, 275,
 295, 300-302, 317,
 318, 368, 370
 marine service, 25,
 301, 376, 377
 navigable waterways,
 25, 26, 300, 301
 ports, 25, 318, 319
 sudd, 25, 26
 Kioga Lake district:
 cultivation and pro-
 duce, 27, 237, 283
 fauna, 172, 182
 physical features, 24-
 28
 vegetation, 155
 Kirambo, Mt., 2
 Kiringente, 310
 Kirkpatrick, L., 75, 76,
 81
 Kirunga Mts.: *see*
 Mfumbiro Mts.
 Kiruruma swamp, 43
 Kirurumu R., 7
 Kisii highlands, 13
 Kisosi, 306
 Kisumu, 1, 13, 15, 134,
 221, 298; communica-
 tions, 279, 282, 294,
 297
 Kiswahili people, 337
 Kitaiuka, 308
 Kite: black-winged,
 168;
 Egyptian, 168
 Kiteng, Mt., 80
 Kitgum, 223, 281, 288;
 communications, 288,
 321, 322
 Kitgura, 79
 Kitoba, 320
 Kitosi, 286, 306
 Kituntu, 310
 Kivise, Mt., 7
 Kivu, L., 8, 14, 45, 46,
 49, 95, 99
 Kivumbo district: fly
 area, 173
 Kivuvu Company, 241
 Kiwala, 306
 Kiwewa, Kabaka of Bu-
 ganda, 349, 350
 Kiyanja, Mt., 58
 Kiziba, 310
 Kizima, Mt., 82
 Kjazanga, 307
Klaineodoxia sp., 157
 Klipspringer, 164, 178
 Koba: climate, 116,
 117, 379-388, 394-
 395; fauna, 181
 Koki, 36-38, 260; com-
 munications, 290, 293,
 313
 Kokinjero, Mt., 28
 Kololo hill, 287
 Komi Channel, 18
 Komi I., 18

- Kongoni, *or* Coke's hartebeest, 177
 Kos R., 4
Kpewere, 157
 Kudu ; great, 167, 182 ; lesser, 164, 182
 Kuku Mts., 74
 Kuku tribe, 74
 Kumam tribe, 209
 Kumba, 42, 314
 Kumi, 130, **289**
 climate, 132, 379, 388-395
 communications, 274, 282, 285, 289, 292
 304, 317, 318
 cultivation, 241
 Kungu fly, 15
 Kwania, L., 22, 24, 26, 300, 301, 318
 fauna, 176, 182
 vegetation, 155
 Kwatobok, 323
 Kyabalanga, 311
 Kyandaza, 310
 Kyaratanga, 311, 312
 Kyatwa, 99, 310
 Kyatwa hill, 54
 Kyenjojo, 311
 Kyetume, 306
 Kyotera, 308
- L**
- Labor, 253, 254
 Laburr country, 374
 Lade R., 176
 Lado Enclave, 73, 367
 Laikipia plateau, 97
 Lalak, Mt., 80
 Lale, **289**
 communications, 289, 297, 317, 318
 port, 289, 318
 Lami R., 2, 61
 Lamogi, Mts., 77, 78
 Lamwa, Mt., 80
Landolphia sp., 157, 158, 240. *See also* Rubber
 Langatelio (*or* Chemorongi) Mts., 12, 83, 85, 86
 Langia, Mt., 4, 80
 Lango district, 12, 76, 225, 239, 241, 289, 371-373
 communications, 318
 cultivation, 230, 233
 fauna, 176, 179, 181, 182
 live stock, 253, 254
 native organization, 331, 332
 physical features, 24-28
 vegetation, 155
 Lango tribe, 210
 Laroma (*or* Loruwama) hills, 76, 80, 81, 85
 Latome, Mt., 4, 84
 Latuka district, 371
 Latuka tribe, 186, 209
 Laughing dove, 169
 Law : procedure, 333-334 ; courts, 334-336
 Leaf disease, 236
 Leeks, 243
 Leju, 299
 Lemon, 243
 Lemurs, 166
 Lendu tribe, 187
 Leopards, 163, 164, 166, 183
 Lettuce, 243
 Lia valley, 83
 Lianas, 156, 159
 Lighters, 274, 275, 295
 Lily-trotters, 169
 Lime, 243
 Linseed, 239
 Lions, 163, 164, 166, 183
 Lira, 223, **289** ; communications, 284, 288, 289, 318, 321
 Lizards, 171
 Lobara, 53
 Lobelias, 161, 162
 Lobor, Mt., 83
 Lobor district, 12, 75, 76, 79, 93, 331, 337, 371
 Lobor Mts., 12, 76, 79, 81
 Lochoworyan R., 323
 Locusts, 174
 Logire, Mt., 179
 Lojom swamp, 88
 Lokapel, 324
 Lokichari R., 75, 76, 81-83
 Lokitoi Kasosogwa, 323
 Lokolopus hills, 89
 Lokutas, 84, 324
 Lokwakipi, 324
 Lolui Is., 20
 Longicorn beetle, 236
 Longolechom, Mt., 87, 88
 Lopari Pari, 323
 Lopatom's, 324
 Lopei, 323
 Lopetom, 83
 Lora R. : *see* Lyoro R.
 Lorusia, Mt., 90
 Loruwama hills : *see* Laroma hills
 Lotuka country, 108
 Lourdel, Père, 345, 347, 349, 350, 353-355
 Love-bird, 170
Lovoa sp., 158, 159
 Luambabye Forest, 156, 158, 244
 Luambabye R., 158
Lubare (pagan worship), 346
 Lubenga R., 285
 Lubilia-Chako R., 2
 Lubur, Mt., 4, 12
 Lubur Mts., 86, 91
 Lubwas, 348, 368
Lufugo, 246
 Luganda language, 1
 Lugard, Sir F., 187, 352, 356-361, 363, 364, 366, 367
 Lugogo R., 34
 Luigi di Savoia, Mt., 58, 60
Lukiko (native council), 286, 328, 329, 330, 331, 332, 336, 340-342, 370, 372
 Lukonge, 292, 316
 Luku, Mt. : *see* Baker, Mt.
 Lukuku, 321
 Lukumbi, 307
 Lukyamu, 307
 Lungfish, 172
 Lunyoro dialect, 200

Lusambya : see *Nsam-bya*

Lusenke, 154

Lutobo, 284, 303, 313

Luwero, 307

Luyanega Bay, 16

Luzinga, 285, 304, 315

Luzira : see Port Bell

Lwakaka, 292, 316

Lyantonde, 307

Lyoro (or Lora) R., 89

M

Maanja : see Mayania, R.

Maba abyssinica, 159

Mabaremere, Mt., 7, 43

Mabira district, 283

Mabira Forest, 21, 32,

33, 156, 157, 174, 240,

244, 246-248, 250

Mabira Forest Rubber

Company, 157, 244

Macdonald, Major, 359,

365, 366, 368

Macdonald Bay, 17, 20

Mackay, Alexander, 345,

346, 347, 348, 354

Madi country, 108

Madi Mts., 74

Madi Opei, 322

Madi tribe, 74, 212

Madial, 80, 84, 322

Mageta I., 5

Magode's, 315

Magosi, 76, 85

Magosi hills, 76, 176,

180-182

Magungu, 24

Mahagi, 3, 45, 64, 65, 72,

301, 302

Mahavura, 47

Mahogany, 156, 244, 245

Mahoma R., 55

Mailo land, 341, 342

Mails, 305, 306. See also

Runner mails

Main Rift valley : see

Eastern Rift valley

Maize, 188, 225, 239

Makindu palm, 247

Makobole's, 314

Malaba (or Malawa) R., 5

Malaria, 218-220, 287

Malawa R. : see Malaba

R.

Male, 172

Male nkuyu, 172

Mallard, African, 169

Malongo, 38

Mamba, 172

Mammals, 165-167

Manafwa R., 29

Mango, 243

Manimani, 323

Manimani R., 82

Manioc : see Cassava

Mantis, 175

Marabou, 170

Maramagambo Forest,

49, 176, 183

Margherita, Mt., 2, 55,

58, 61

Maroto, Mt., 75, 81-83,

85, 182

Maroto R., 83

Maru Asikar : see Moru-

asokar Mts.

Marrows, 243

Marsh harriers, 168

Marsh warblers, 171

Masai languages, 209

tribes, 186, 212-215,

255

Masaka, 37, 38, 223, 290

climate, 107, 108, 141,

379-405, 421-423

communications, 278,

290, 293, 295, 303-

305, 307-310, 312

Masaka district, 36, 259,

371

communications, 307

cultivation, 229-231

live stock, 253, 254,

256

Masaka Road, 310

Masemani, 323

Masindi, 66-68, 223, 290,

331

climate, 116-119, 379-

395

communications, 275,

277, 278, 281, 285,

288, 290, 291, 300,

302, 305, 319, 321

cultivation, 228, 230,

231, 234

fly area, 173

live stock, 253, 254

Masindi Port, 22, 23, 25,

66, 68, 291-292 ; com-

munications, 278, 291,

295, 300-302, 304,

305, 319

Masters and Servants

Ordinance, 272

Matete : see Elephant

grass

Matiri, 285, 286, 302,

311

Matoko, Mt., 3

Mau highlands, 13, 371

Mau - Elgeyo escarp-

ment, 92

Mawogola, 36

Mayania (Maanja) R.,

34

Mazimasa, 316

Mbai tribe, 211

Mbale, 5, 28-30, 223,

244, 292-293

climate, 130-132, 379-

405

communications, 282,

285, 289, 292, 294-

296, 304, 305, 314,

315

Mbale-Kilimtrade route,

324

Mbali (Bugunda), 278,

306, 309, 310

Mbarara, 38-41, 96, 159,

223, 293-294

climate, 126, 379-405,

407, 413-416

communications, 279,

284, 293, 295, 303,

309, 311-313, 316,

317

fauna, 178

Mbiru Point, 18

Mboga, 62, 167, 359,

360, 364, 365, 368

Mbulamuti, 294 ; com-

munications, 288, 294,

304, 315

Mchuera R., 49

Meat, 251

- Medical officers, 223
 Mengo (capital), 344, 345, 350, 356, 358.
See also Kampala
 Mengo district, 371
 animal products, 257
 communications, 306-307
 cultivation, 225, 227, 229-231, 234, 242
 industries, 260, 270
 live stock, 253, 254
 Mengo hill, 32, 286, 356
 Meteorological stations, 379; observations, 380-424
 Mfumbiro (Kirunga or Virunga) Mts., 7, 9, 11, 41, 45-48, 51, 69, 94, 95, 97, 99
 Mfwanganu I., 5
 Mgahinga, Mt., 7, 46, 47
 Mi Debasien, 323
 Mikenno, Mt., 46
 Military expenditure, 338
 service, 271, 337
 training centre, 276
 Milk, 250, 252, 254, 257
 Millet, 29, 194, 225, 228, 230, 239
 Mill Hill Mission: *see* Roman Catholic Missions
 Millipedes, 238
 Mills, 243
Minusops voroensis, 159
 Mining, 342
 Miningame Rapids, 6, 16
 Minziro hills, 6
Miovu, 156-159, 244, 247
 Miro tribe, 210
 Missions, 215-217, 227, 235, 280, 345-349.
See also Church Missionary Society; Protestant Missions; Roman Catholic Missions
 Mitala Maria, 310
 Mityana, 36, 223, 302
 Mizinda Bay, 16
 Mjanji, 20, 294
 communications, 292, 294, 304, 315, 317
 port, 294
 Mkondo, 308
 Mkwajuni, 323
 Mobuku valley, 100
 Mogila, Mt., 4, 89
 Mohammedans, 199, 210, 346, 349, 350, 353, 354, 357, 359, 360, 366, 368, 369; revolt of, 364-365
 Mokono, 33, 223
 Mombasa, 1, 270, 306
 Mondri, 299
 Monkeys, 163, 165, 166, 175
 Morongole Mts., 12, 76, 84, 85
 Moroto, Mt., 12
 Moru, Mt., 115
 Moruasakar (Maru Asikar) Mts., 85, 87, 88
 Mosquitoes, 25, 174, 283
 Mosses, 162
 Motor roads, 302, 303, 306, 307, 309-311, 314, 315, 319
 transport, 276-278, 280, 282, 285, 286, 290-292, 294, 297, 305, 317, 319, 327, 376, 377
 Mountain R.: *see* Bahr el Jebel
 Mouse-deer, 165, 167
 Mowhiju, 320
 Mpalo, 314
 Mpamujugu, 36
 Mpanga R., 52, 53, 55, 158, 312
Mpewere, 247
Mpigi, 310
Mpimbya, 247
Mpindi, 225
 Mpologoma Gulf, 27
 Mpologoma R., 26, 29, 30, 292
 Mpologoma swamp, 315
 Mpororo, 41
 Mpumu, 306, 307
 Mputa, 172
 Mruli, 34, 345
Mtama, 239
 Mtesa, *Kabaka* of Buganda, 344-347, 350
 Mtusi tribe, 330
 Muanga, L., 42, 48
 Muanza, 106, 107
Mubajangabo, 247
Mubajangalabi, 247
 Mubango, 282, 306, 307
 Mubango hill, 260
 Mubendi, 35, 36, 53, 295
 climate, 125, 126, 379-383, 388-395
 communications, 278, 286, 293, 295, 302, 305, 308, 309, 313, 320
 Mubendi (Kakumiro) district, 56, 371
 communications, 308
 cultivation, 230, 231, 243
 live stock, 253, 254, 257
 Mubuku glacier, 59, 60
 Mubuku R., 54, 59
 valley, 59, 159, 247
Mubula, 156, 158, 159, 247
 Mudama, 310
 Mudfish, 172
 Mugabe (native ruler), 330
 Muganda, 1, 271. *See* Baganda
Mugavu, 159, 247
 Muhavura, Mt., 7, 46, 48
Muhindi, 156-159, 247
 Muhokya, 312
 Muhombo: *see* Kibale
 Muhumbu, 311
 Mujasi Gabriel, 369
Mukama (native ruler), 329, 330, 331
Mukebu, 248
 Mukoko, 308
Mukole, 248
 Mukono, 286, 297, 306, 310
 Muku, 299
Mukuny, 157, 158, 248
 Mulago hill, 287

- Mulampindi*, 247
Mulberry, 243
Mules, 255
Mululu, 158, 248
Mumias, 5, 305, 352, 353
Mumuli, 248
Munyama, 156-158, 245, 248
Murchison Bay, 17, 18, 33, 34, 259
Murchison Falls, 23, 24, 45, 66, 72, 77, 93, 301
Muriaga R., 2
Murjau, 299
Murukunyu, 312
Murusokar Mts., 176
Musaja Mukuru, Mt., 68
Musenene, 156-158, 245, 248
Museru, 157
Musizi, 157, 158, 244, 248
Musoga, 249
Musogasoga, 249
Mussini, 322
Mutai, 245
Mutanda, L., 48
Mutir Port, 322
Mutumba, 157, 249
Muvumba R., 7
Muzizi R., 36, 56
Mvansa, 146
Mvule, 293
Mvule, 156, 157, 245, 249
Mwafu, 157
Mwanga, Kabaka of Buganda, 347-350, 352-359, 361-369
Mwanza, 15
Mwenge, 56
Mwojolo, 249
Mwuleru, L., 7

N
Nabieso, 278, 282, 285, 292
Nabugabo, L., 37
Nabukazi, 306
Nagalama, 306, 307
Nagongera, 295
Nagwo, 27

Naigobya, 315
Nairobi coffee, 263
Naivasha, 375
Nakasero, Mt., 32, 33, 286-288
Nakasongola, 276, 291, 304, 307
Nakitawa, 59
Nakivali, L., 39
Nakolale, R., 88
Nakwai Mts., 176
Nalusanje, 314
Nalwezo, 308
Namasagali, 21, 22, 25, 176, 223, 295, 339
 communications, 282,
 292, 295, 300-302
 port, 295
Namasaka, 320
Namasale peninsula, 182
Namatali, R., 29
Namayumba, 310
Nambigiruwa forest,
 244
Namirembe hills, 32, 287
Namligira, Mt., 46, 47
Nandera, 172
Nandi district, 371
Nangiya, 176, 180
Nangiya tribe, 80
Napoleon Gulf, 17, 19, 21, 33
Napoño, Mt., 76, 77, 79
Nasu Point, 19
Natakolem, 323
Natakolem R., 82
National Bank of India,
 269, 283, 288
Native:
 administration, 191,
 201, 327-333
 agriculture and culti-
 vation, 188, 194,
 196, 198, 207, 214,
 225, 226, 230-231,
 234, 236, 240, 241,
 274
 aristocracy, 190
 chiefs, salaries of, 372
 customs, 188, 189,
 193, 195, 200, 252,
 256
 diseases, 220-222
 dress, 189, 196, 198,
 202, 204
 education, 215-217
 fishing, 196
 food-crops, 225, 228,
 229, 233, 239, 243,
 296
 hospitals, 280, 281,
 283, 287, 289-291,
 293, 294, 297
 hunting, 189, 206, 207
 huts, 187, 188, 192, 196,
 198, 202, 206, 207,
 210, 211, 212, 214,
 221, 286
 industries, 191, 202,
 236, 250, 259, 270,
 288
 justice, 201, 328, 330,
 335-336
 labour, 228, 273
 land and landowners,
 341-342
 marriage, 198, 200
 ornaments, 203, 206,
 207
 pastoral pursuits, 200,
 204, 252-254
 physical characteris-
 tics, 190, 196, 197,
 199, 200, 204, 206,
 210
 plantations, 235, 236
 polygamy, 194
 population, 185-217,
 279, 281, 285; sta-
 tistics, 425
 religion, 187, 188, 193-
 196, 198, 199, 203,
 205, 208, 214, 251
 roads, 191, 319
 sailors, 272
 teachers, 287
 tobacco, 225, 242
 totems, 200
 town dwellings, 283,
 294
 tribal organization,
 189, 191
Navigation, 298, 300-
 301
Navikubu swamp, 286,
 288

- Nazareth, 308
Neoboutonia canescens, 159
Neruzi, 89
Neuwied, 146
Ngaboto, 86
Ngambwa, 172
Nganda ox, 251
Ngassa, 172
Ngege, 172
Ngiti, 302
Ngogwe, 307
Ngora, 27, 130, 223, 275, 296
 climate, 131, 132, 379, 388-395
 communications, 296, 317
 port, 296
Ngurunga, 81
Ngusi (or Nkusi) R., 36, 56, 65, 66, 173, 320; ferry, 311
Nhuru, 172
Niamsigiri, L., 50
Night-jars, 171
Nile districts, 371
Nile perch, 172
Nile R., 8, 9, 14, 21-25, 30, 31, 44, 46, 58, 66, 69, 72, 74, 81, 92, 93, 99, 103, 108, 109, 114, 168, 169, 259, 301
Nile valley, 218
Nilotic tribes, 185, 186, 189, 205-212, 337
Nimule, 3, 69, 70, 72, 74-79, 178, 181, 371
 climate, 109, 112, 379-405
 communications, 277, 278, 281, 285, 291, 299, 301, 302
Nkabwa, Mt., 2, 47, 48
Nkeje, 172
Nkobo, 249
Nkokwa, 250
Nkosi, 310
Nkuguti (or Kagoto), L., 40
No, L., 69
Nomads, 255, 324
Nongo, 249
Nopak, Mt., 82
Northern Province, 291, 337, 340, 371
 administrative divisions, 12, 331, 333
 area, 331
 communications, 319
 cultivation, 230, 231, 239, 250
 education, 216
 labour, 273
 live stock, 253, 254
 native organization, 328, 331
 population, 425
Nsagalla ox, 251
Nsagu, 310
Nsanbya, or Lusambya, 154, 156, 157, 159, 245, 249
Nsara, 39
Nsoga ox, 251
Ntalaganya, 178
Ntungwe R. : see Bera-rara R.
Nuigo, 172
Nyamaganga Forest, 157
Nyamgasha : see Nyamwamba R.
Nyamwamba (or Nyamgasha) R., 50
Nyamwamba valley, 60
Nyasa, L., 8, 15, 44
Nyaura R., 3
Nyiri, Mt., 3, 74
Nyonyi Entono, 349, 350
Nzoia R., 30
- O
- Oil palm*, 156
Oil-seeds, 228, 250
Okapi, 164, 167
Omo R., 90
Omulamuzi (chief justice), 328
Omwumu, 157, 249
Omwunika (treasurer), 328
Onions, 243
Opari, 299
Ora R., 72, 73
Oranges, 243
Orchids, 154, 156, 159, 161
Oribi, 179
Orichinga R., 39
Ostrich, 168
Ostrich-farming, 256
Otters, 166
Otze, Jebel, 74
Qwls, 165, 168
- P
- Pader*, 321
Paganism, 346
Pajao : see Fajao
Pajuli, 321
Pakanya, 319
Palabek, 289
Palajoki, Mt., 68
Palisa, 296; communications, 285, 292, 296, 317
Palms, 152-154, 156, 159
Palmyra (or fan) palm, 152-154, 156, 159
Pambarri, 146
Paniahara, 324
Panyanyu plain, 73
Paoera : see Foweira
Papyrus, 16, 17, 22, 24-26, 30, 33, 35, 56, 61, 70, 71, 154, 155, 163, 196, 301
Parabong, Mt., 79
Paranga, 321
Paranga Ferry, 288
Para rubber, 227, 228, 230, 231, 233, 235, 236, 240, 241, 264
Parkia filicordia, 156, 157
Parrot, grey, 164, 168, 170; Meyer's, 170
Partridges, 169
Pastoral tribes, 250
Pasture, 84, 86, 91, 108, 154, 250, 252, 293
Patas, 166
Patiko plateau : see Fat-iko plateau

Paw paw, 243
 Pearl owl, 168
 Peas, 225, 243
 Pegi hills, 22
 Pelegech, Mt., 87, 88, 374
 Pelicans, 170
Pentas, 155
 Pests, 172-175, 234, 236, 238
 Peters, Dr. Karl, 352, 353, 354, 355
Phoenix reclinata, 159
 Pibor R., 85
 Pig: bush, 167; giant, 164; wild, 163
 Pigeons, 169
 Pilitok, 318
 Pineapple, 243
Pistia stratiotis, 155
 Plague, 283, 286
 Plantain-beer, 229, 239
 Plantain-eaters, 170
 Plantations, 40, 68, 226-228, 229, 233, 235, 236, 241, 250, 264, 286, 327
 Plovers, 169
 Plumbago, 260
Podocarpus milanjianus, 160
 Poger R., 76, 79
 Poll tax, 337, 372, 376
 Port Atura: *see* Atura
 Port Bell (or Luzira), 18, 33, 296-297
 communications, 278, 285, 297, 300, 304-306
 railway to Kampala, 296, 339
 Port Bell Road, 306
 Port Florence, 134
 Port Liri, 281, 321
 Port Masindi: *see* Masindi Port
 Portal, Sir Gerald, mission of, 361-364
 Portal Peaks, 55
 Porterage, 271, 273, 288, 298, 299, 301, 304, 311
 Potatoes, 243

Powaa, 322
Protea madiensis, 153
 Protestant missions, 346, 347, 348, 349, 350, 353-358, 362, 364.
 See also Church Missionary Society
 Provincial government, 327-333
Pseudocedrella excelsa, 159
Pseudocedrella utilis, 158
Pseudospondias microcarpa, 157, 159
 Public Works Department, 326, 327, 376
 Pulse, 228
 Pumpkins, 188
 Puti Puti, 316
Pycnanthus schweinfurthii, 157
 Pygmy tribes, 43, 185-189
 Pythons, 171

Q

Quails, 169
 Quartzite, 101

R

Radcliffe, Major Delmé, 369
 Raffia palm, 153
 Ragwe Point, 20
 Rainfall, 67, 102-106, 108, 109, 112-117, 119-122, 125, 127, 130, 131, 134-138, 140-143, 146, 147, 151, 388-395
 Rakai, 308
 Ramusa, 373, 374
 Rats, 283
 Rattan-canes, 158, 244
 Red sea, 7
 Redwood, *or* 'Sassy-bark', 156
 Reed, 155
 Reed-bucks, 165, 179, 180

Rejaf, 45, 74, 298-300
 Relapsing fever, 175, 219
 Religion, 345-355; religious liberty, 349, 357; wars, 349-355.
 See also Christianity; Missions; Moham-medans
 Reptiles, 171
 Rest-camps, 298, 307, 308
 Rest-houses, 219, 291
 Rhinoceros, 165, 176; horn, 338
 Rice, 225, 229, 239
 Rickshaws, 310
 Rift Valley, 2, 7, 9, 14, 23, 39, 40, 42-45, 47-49, 51, 53, 54, 57, 63, 64, 66, 72, 81-85, 97, 99. *See also* Eastern and Western Rift valleys
 Rinderpest, 252
 Ripon Falls, 9, 19, 21, 22, 33, 93, 102, 169, 172, 174, 259, 300
 Rollers, 171
 Rom, Mt., 80, 81, 83
 Roman Catholic missions, 32, 291, 347, 349, 350, 364
 Italian Mission of Verona, 215, 216
 Mill Hill Mission, 215, 216, 364; schools, 282, 283, 285, 287, 288, 295-297
 White Fathers, Order of, 215, 216, 260, 345; schools, 279, 281, 287, 294
 Roman Catholics and the politico-religious question, 354-359, 362-364, 366, 367
 Rosebery, Lord, 361
 Rosebery Channel, 18, 19
 Rovuma R., 351
 Ruakateng swamp, 41, 44

- Ruampara Mts., 6, 11, 39, 41
 Ruanda (Belgian mandatory territory), 2, 6, 42, 46, 303
 Ruanda (British mandatory territory), 2, 6, 38, 42, 96, 314; native organization, 330
 Rubaga Mt., 32, 287
 Rubber, 150, 156-158, 224, 226-228, 230-232, 240, 262
 Rubi, L., 70, 71, 78
 Rubona, 312
 Ruchuru (*or* Kako) R., 42, 48, 49
 Rudolf, L., 2, 4, 5, 8, 9, 12, 30, 96, 102, 103, 105, 108, 152, 176, 178, 353; physical geography, 87-91
 Rudolf Province, 303, 327, 337
 administrative divisions, 12, 333
 communications, 303, 316, 322
 districts, 12, 371
 fauna, 164, 166, 168, 176-182
 flora, 150
 live stock, 251, 254, 255
 mineral products, 260
 population, 425
 Rufua R., 41
 Ruhuhuma swamp, 43, 48
 Ruisamba, L., 52
 Ruizi R., 38, 39
 Rukhuru (Congo), 303
 Rukiga highlands, 7, 11, 42, 43, 47; native organization, 330
 Runner mails, 278, 279, 281, 282, 285, 289, 291-293, 295, 305
 Rusaiya R., 48
 Rushenyi, 41, 42
 Rusisi R., 95
 Rusumburu district, 154, 284, 314
 Rutelid beetle, 234
 Ruwenzori Mts., 2, 11, 35, 40, 45, 50-55, 61-63, 69, 92, 99, 103, 108, 109, 151, 160, 162, 164, 189
 cultivation, 225, 243
 fauna, 166, 169-171, 175-178, 184
 forests, 156, 159
 geology, 99-101
 physical features, 57-60
 Ruzumburu region, 44, 331
 Rwimi (Wimi) R., 52, 54
- S
- Sabinio, Mt., 2, 7, 46, 47
 Sacchi R. : *see* Kibish R.
 St. John's wort, 161
 Salisbury Channel, 18
 Salisbury, L., 24, 26, 27, 29, 81, 172, 259, 289, 304, 317, 318
 Salisbury, Lord, 361
 Salt, 90, 202, 260, 262
 monopoly, 360
 works, 65, 202
 Salt Lake, 360, 366
 Salt springs, 87, 89, 91
 Sambwe, 275
 Sambwe-Agu canal, 274
 Sami, 15
 Sanderson's Gulf, 4, 90, 91
 Sand-fleas : *see* Jiggers
 Sand-grouse, 168, 169
 Sandstones, 96
 Sangai, 297; communications, 297, 318
 Sango Bay, 13, 17, 38, 244, 290, 308
 Sango R., 5
 Sanji, 308
Sarcocephalus Russegeri, 153
 Sargai, 304
 'Sassy bark' : *see* Red-wood
 Sausage-tree, 152
 Savannah, 153-155, 224
 Save : *see* Sebei
 Saw-mills, 244, 279
 Saza councils, 328-332; chiefs, 370
 Scale insects, 234, 236, 238
 Scops owl, 168
 Screw pine, 156, 158
 Sebei (*or* Save), 28, 316
 Secretary-bird, 165, 168
 Selim Bey, 357, 359, 360, 364, 365
 Semitundu, 172
 Semliki plain, 62
 fauna, 164
 Semliki (*or* Etuli) R., 2, 11, 44, 45, 50, 51, 53, 57, 58, 60, 61, 62, 92, 95, 102, 109, 172, 188, 189, 259, 279, 302, 312
 Semliki valley, 53, 60
 64, 97, 165, 185, 186, 196, 248, 249
 fauna, 176, 177, 179, 181
 fly area, 173
 physical features, 61-63
 Serere, 304, 318
 Serval cat, 166
 Servaline cat, 166
Sesambya, 157, 250
 Sesame : *see* Sim-sim
 Sese archipelago, 18
 Sese Is., 15, 17-19, 172, 220, 350, 358
 Sezibwa R., 22, 33, 34
 Shea butter-tree, 152, 250
 Sheep, 86, 204, 250, 251, 253; statistics, 254
 Sheep-skins, 258, 262
 Shirati, 142, 146
 Shoka, 299
 Shrikes, 171
 Shuli district, 371
 Sigulu I., 20
 Silk industry, 291
 Silk-rubber tree, 156, 157, 240
 Silkworms, 257, 262

- Sim-sim or sesame, 211,
 224, 225, 228, 230, 232,
 241, 296; oil, 262;
 seeds, 262, 264
 Singo, 34, 35, 153, 309
 Sio R., 5, 14, 30, 31, 304
 Sipi, 316
 Siroko, 316
 Siroko R., 29
 Situtunga, 163, 164, 167,
 181
 Skin diseases, 219
 Skins, 251, 257, 262, 338
 Slate quarries, 260
 Slave trade, 354, 357,
 362, 363
 Sleeping-sickness, 22, 31,
 64, 156, 172, 191, 218,
 220, 221, 260, 294, 295,
 372, 376; camp, 327
 Sleeping-sickness Ordi-
 nance, 259
 Small-pox, 222
 Snake-bite, 172, 222
 Snakes, 171, 222
 Snipe, 169
 Snow peaks, 58, 59
 Sobat R., 9, 88
 Soda, 90
 Sogbeg, Mt., 82
 Somali traders, 274, 293;
 tribe, 185
 Sorghum, 188
 Soroko R., 27
 Soroti, 27, 223, 297;
 communications, 289,
 304, 317
 South Island: *see* El
 Molo
 Spain, trade with, 263
 Sparrows, 170
Spathodea companucha-
tra, 156
 Spear-grass, 155
 Speke, Capt. J. H., 1, 344
 Speke, Mt., 58, 59
 Spinach, 243
 Spirillum, 175
 Squirrels, 167
 Sroko, 156
 Standard Bank of South
 Africa, 269, 288
 Stanley, Sir H. M., 58,
 344, 345, 346, 351,
 353, 355, 365
 Stanley, Mt., 58-60, 100
 Starlings, 171
 Steamer service, 274-
 278, 280, 282, 284,
 288, 292, 294, 295,
 298-302, 304, 375-377
 Steppe, 151-153
Sterculia cinerea, 153
 Stick insect, 175
 Stilts, 169
 Stock-breeding, 250
 Stokes, Mr., 350, 354, 357
 Stone curlew, or Thick-
 knee, 169
 Stone knots, 169
 Storks, 165, 170
 Strawberry, 243
 Stuhlman Pass, 59
 Sudan, 371
 Government steamers,
 298, 299, 301
 ivory poachers, 324
 troops, 356-358, 360,
 362, 364-366, 374,
 375; mutiny of,
 367-369, 375
 Sudan-Uganda bound-
 ary, 3
 Sudd, 155, 301, 302
 Sugar, 229, 232, 241
 Sugota, L., 102
 Suk district, 371, 374
 Suk Mts., 83, 85, 86
 Suk tribe, 255
 Sumba I., 5, 20
 Suna, King, 343, 344
 Sunga, 307
 Sun-birds, 171
 Sunflowers, 154
 Sunshine, 398-399
 Survey Department,
 326, 375
 Swahilis, 270, 273, 274,
 356, 366, 368, 369, 374
 Swallow, 171
 Swamp orchis, 155
 Sweet banana: *see*
Gonga
 Sweet potatoes, 194,
 224, 225, 230, 242
 Sycamore fig, 153
Symphonia sp., 159
 Syphilis, 191, 221

T

- Tabora, 7
 Tamarind, 153
 Tana, R., 1, 351-353
 Tanganyika, L., 8, 14-
 16, 46, 95, 96
 Tanganyika-Nile rift, 8
 Tanganyika Territory,
 2, 6, 8, 11, 15, 16, 38,
 284, 301; trade with,
 268, 352
 Tannin, 250
 Tarash R., 87, 88
 Taxes, assessment and
 collection of, 328-331,
 337, 370, 373
 Tea, 242
 Telegraphs, 305, 375,
 376
 Telephones, 276-278,
 282, 285, 290-293, 295,
 305
 Temperature, 102-106,
 109-111, 113-116, 118,
 120, 125, 126, 130,
 133, 134, 136, 141,
 145, 146, 380-387
 Tepeth tribe, 83
 Teretenia, 322
 Teretenia, Mt., 4, 80,
 176, 182
 Terminalias, 152, 154
 Termites, 174
 Ternan, Colonel, 367
 Terns, 169
 Tero Forest, 32, 37, 156,
 158, 176, 244, 247-249
 Teso district, 12, 76, 155,
 164, 225, 289, 297,
 372
 communications, 317
 cultivation, 226, 230,
 231, 233, 237, 239,
 242
 live stock, 253, 254
 physical features, 24-
 28
 vegetation, 153
 Teso tribe, 186, 206,

- 213-215; political organization, 215, 331, 332
- Teuso tribe, 85
- Thick-knee, or Stone curlew, 119
- Thorn bush, 152
- Thrushes, 171
- Thruston Bay, 19
- Thunderstorms, 102, 106, 139, 147, 396-397
- Tiang, Uganda, 178.
- Ticks, 212, 219
- Timber, 67, 150, 151, 153, 157, 158, 160, 161, 232, 244-250, 262
- Tobacco, 85, 188, 230, 242
- Tochi R., 23, 25, 77, 78, 320
- Toddalia nobilis*, 159
- Tomatoes, 243
- Tombi Boru, 299
- Tombi Musa, 299
- Tonia, 300, 309
- Topi, 165, 178
- Toro district, 11, 31, 35, 36, 45, 151, 189, 200, 218, 223, 224, 358, 371
- birth and death rate, 425
- climate, 53
- communications, 311
- cultivation, 55, 224, 225, 227, 228, 230, 231, 234, 240, 242-244
- fauna, 164, 175, 177, 179, 182
- fly area, 173
- forests, 53-56, 248
- game reserve, 165, 173
- hospital, 223, 280
- judicial system, 336
- land tenure, 341
- live stock, 253, 254
- native industries, 259
- native kingdom, 12, 343, 360, 366, 370; agreements with, 363, 372, 373
- native organization, 328-330
- physical features, 53-57
- vegetation, 153, 154
- Toro Road, 310
- Tororo, 260, 315
- Tororo, Mt.: see Jiwe, Mt.
- Tortoise-shell, 338
- Tracy Falls, 316
- Transport, 227, 228, 245, 262, 271, 300, 302, 304, 311, 327, 338, 376, 377
- Transport animals, 233
- Tree-cobra, 171
- Tree-ferns, 156, 159
- Tree-heaths, 159-161
- Tree-pipit, 171
- Trout, 172
- Trypanosome, 173, 220
- Trypanosomiasis, 173, 174, 221, 252
- Tsetse fly, 39, 172, 173, 220, 250, 253, 289
- Tshudi-Tshudi, 316, 322, 324
- Tuberculosis, 222
- Tungaru, 65
- Turacos, or plantain-eaters, 170
- Turkana country, 10, 12, 151, 371
- physical features, 85-89
- tribes, 85, 86, 213, 251, 255, 374
- Turkwel district, 12, 371
- Turkwel R., 5, 8, 28, 30, 81, 82, 85-88, 90, 97, 180
- Turtle-dove, collared, 169
- U
- Uasin-Gishu plateau, 13
- Uganda Passage, 20
- Uganda Agreement (1900), 338, 369
- Uganda (Judicial) Agreement (1905), 372
- Uganda (Payment of Chiefs) Agreement, 372
- Uganda (Poll Tax) Agreements (1904, 1909), 372
- Uganda Cotton Company, 287
- Uganda Cotton Rules, 225
- Uganda Courts Ordinance (1911), 334, 335
- Uganda Engineering Company, 288
- Uganda, kingdom of: see Buganda
- Uganda Orders in Council: (1902) 325, 333, 334, 370; (1911) 333
- Uganda Protectorate: administration, 332-342
- administrative divisions, 12, 371
- agricultural products, 229-244; exports, 232
- agriculture, 108, 224-229
- animal products, 257-259
- area, 1
- boundaries, 2-7, 371, 372
- climate, 102-149, 280, 379-424
- communications, 298-325, 375-377
- currency, 340
- customs, 326, 338, 362, 375, 376
- economic development, 372, 375-378
- education, 216
- exports and imports, 261-270
- fauna, 163-184
- fisheries, 259
- flora, 150-162
- frontiers, 355, 371, 372
- general description, 7-12
- geology, 92-101

- Uganda Protectorate
 (*continued*):
 government: central,
 325-327; provincial,
 327-332
 grants in aid, 375-377
 health conditions, 109
 history, 343-378
 justice, 333-336, 373
 labour and industry,
 229, 241, 270-273,
 279, 283, 287, 293
 land tenure, 340-342,
 372
 language, 1, 190, 199,
 200, 209
 live stock, 250-259,
 262
 local administration,
 327-333, 370
 mineral products, 259-
 260
 name, 1
 physical geography,
 13-91
 police, 336-337, 376
 population, 185-217;
 statistics, 425
 ports, 15, 275-278,
 280, 282, 284, 289,
 292, 294-297
 postal service, 305
 provinces, 12
 railways, 300
 resources, 224-260
 revenue and expendi-
 ture, 337-40, 375-7
 roads and tracks, 191,
 274-282, 284, 285,
 288-297, 301-305
 sanitary conditions,
 218-223
 situation, 1
 townships, 274-297
 trade and industry,
 261-297
 vegetation, 10, 150-62
 waterways, 300-301
 Uganda Railway, 1, 15,
 261, 272, 292, 300,
 301, 361, 362, 375,
 376; revenue and
 expenditure, 339
- Uganda Railway Marine,
 272, 282, 298, 300
 Uganda Treasury Sav-
 ings Bank, 270
 Ugingo Is., 5
 Ukerewe I., 15
 Uma, 299
 Umbe R., 351
 Umi R., 70, 78
 Umyama R., 3, 72, 78
 United Kingdom: trade
 with, 263, 264, 265,
 268; Uganda's politi-
 cal relations with,
 351-373, 375-377
 United States, trade
 with, 264, 265, 268
 Urundi, 303
- V
- Vaccination, 222
 Vegetable crops, 230,
 243
 Venereal disease, 192,
 221, 287
 Veterinary department,
 327, 376
 Victoria Nile, 9, 10, 14,
 19, 25, 30, 31, 33,
 44, 45, 64-66, 68-
 70, 76-78, 102, 103,
 300, 301
 islands, 21, 24
 steamers and naviga-
 tion, 22, 23, 275,
 300
 sudd, 22, 24
 Victoria Nile district:
 fauna, 176, 178, 181
 flora, 153
 fly area, 173
 physical features, 21-
 24
 railway, 21, 300
 rapids, 21
 Victoria Nyanza (Lake
 Victoria), 1, 5, 6,
 8-11, 21, 30, 31, 33,
 35, 37, 38, 41, 44, 53,
 55, 68, 92, 93, 96,
 98, 102-105, 151,
 157, 189, 190, 195,
- 218, 227, 237, 249,
 259, 304, 315, 351,
 352, 355, 361, 362
 fishing, 259
 islands, 15, 18, 19
 ports, 15
 rise and fall, 14
 squalls, 15, 20
 steamers and naviga-
 tion, 15, 285, 300,
 375
 Victoria Nyanza dis-
 trict: climate, 105,
 106, 379-405
 communications, 375
 cultivation, 224
 disease, 372
 fauna, 169, 172, 180,
 181
 forests, 156
 insect pests, 173
 physical features, 13-
 20
 sleeping sickness, 15
 vegetation, 105, 155
 waterways, 300
 Vipers, or puff adders,
 171
 Virunga Mts.: *see*
 Mfumbiro Mts.
 Visoke, Mt., 46
Vitex Cienkowski, 154
 Volcanoes, 46, 90, 91, 94,
 97, 99, 101
 Vultures, 165, 168
- W
- Wadelai, 70-73, 75, 78,
 363, 367; climate,
 106, 113, 117, 379-395
 Wages, rates of, 273
 Wagtails, 171
 Waiga R., 66
 Waki R., 65
 Wakiso, 310
 Wamala, L., 34-36, 172,
 259
 Wangiri country, 73
 Wanyamwezi people,
 337
 Wanyema people, 337
 Warana, 171

Wart-hog, 167, 183
Wasa, 312
Wasa R., 63
Water-buck, 165, 179
Waterfowl, 163, 167-170
Water-lilies, 155
Water-power, 243
Water supply: for the
springs and running
water of the country,
see Physical Geogra-
phy, 13-91, and Com-
munications, 308-324;
for water-supply of
the towns, *see* Town-
ships, 274-297
Wati, Mt., 73
Weavers, 168, 170, 171
Wei Wei (*or* Kerut) R.,
5, 86
Western Province, 12,
216, 252, 256
administrative divi-
sions, 329, 333;
area, 329
communications, 311
cultivation, 230, 231,
238, 239
districts, 371
labour, 273
live stock, 251, 253,
254
native organization,
328, 329
population, 425
Western (*or* Albertine)
Rift valley, 2, 8-11,
41, 42, 44-45, 62, 72,
95, 155, 158
West Nile district, 12,
69, 331, 337, 371
communications, 322
live stock, 253, 254
physical features, 72-
75
Wheat, 225, 243
Wheat-ear, 171
White Fathers, Order
of: *see* Roman Catho-
lic Missions
White pea: *see* *Mpindi*
White-throat, 171
Whydahs, 170
Wild flowers, 154
Wild pigs, 163
Wild rubber, 240, 250,
264
Williams, Captain, 356,
358, 360, 361, 364, 366
Wimbi: *see* Millet
Wimi: *see* Rwimi R.
Winds, 103-108, 112,
114, 123, 124, 128,
129, 132, 133, 135,
138, 139, 144, 145,
148, 149, 398-424
Y
Yellow-weaver, 169
Yellow-wood: *see*
Musenene
Yingo, 25-27
Z
Zambesi R., 9
Zamuge (*or* Kapeta) R.,
76, 81, 83
Zanzibar, 361; trade
with, 264, 265
Zebras, 164, 167, 176,
177
Zebu, 251
Zinga I., 17
Zingote, Mt., 88, 89
Zokar R., 71, 78
Zomba, 47
Zulia, Mt., 4, 85, 89

